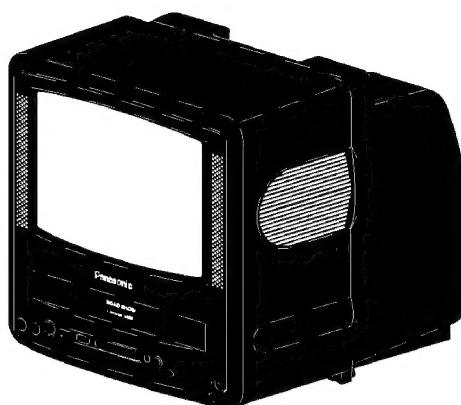


# Service Manual

## Combination VCR

Omnivision **VHS**



**PV-C911**  
**PV-C921**  
**PV-C921-K**  
**PV-C931W**

ITEM		SPECIFICATION		1	2	ITEM		SPECIFICATION		1	2
VCR	Video	Head: 2 rotary heads helical scanning system		○	○	VCR	Tape Speed	SP: 1-5/16 i.p.s (33.35 mm/s), LP: 21/32 i.p.s (16.67 mm/s), SLP: 7/16 i.p.s (11.12 mm/s)		○	○
		Input Level: VIDEO IN Jack (Phono type) 1.0 Vp-p 75 Ω unbalanced		○	○			Record/Playback Time: 8 hr. with 180 min. type tape used in SLP mode		○	○
		Signal-to-Noise Ratio: SP: more than 43 dB		○	○		FF/REW Time: Less than 2-1/2 min. (120 min. type tape)		○	○	
		LP/SLP: more than 41 dB		○	○		Tape width 12.7 mm (1/2 inch) high density tape		○	○	
	Horizontal Resolution: Color/Monochrome: more: SP: 230 lines		○	○	LP/SLP: 220 lines		○	○			
	Audio	Head: Normal Mono: 1 stationary head		○	○	FM Radio	Band Range	87.5 MHz-108.1 MHz		-	○
		Input Level: AUDIO IN Jack (Phono type) -10 dBv 50 kΩ unbalanced		○	○	FM Transmitter	Band Range	93 MHz-97 MHz, 99 MHz-103 MHz		-	○
		Frequency Response: Normal Mono: SP: 100 Hz-8 kHz		○	○		DISPLAY	Picture Tube	9 inch measured diagonal 90 ° deflection Picture Tube		○
		LP: 100 Hz-6 kHz		○	○	Source: 120 V±12 V, 60 Hz±3Hz (AC)		○	○		
		SLP: 100 Hz-5 kHz		○	○	12V/24V (DC)		○	○		
		Signal-to-Noise Ratio: Normal Mono: SP: more than 42 dB		○	○	Power		Consumption: Approx. 63 watts (power on), Approx. 3.5 watts (power off) (AC)	○	○	
	LP/SLP: more than 40 dB		○	○	Approx. 59 watts (power on), Approx. 0.8 watts (power off) (DC 12V)		○	○			
	Wow and Flutter: Normal Mono: SP: Less than 0.2 % WRMS		○	○	Approx. 59 watts (power on), Approx. 1.5 watts (power off) (DC 24V)		○	○			
	Tuner	Broadcast Channels: VHF 2-13, UHF 14-69		○	○	GENERAL	Television System	EIA Standard (525 lines, 60 fields) NTSC Color Signal		○	○
		CABLE Channels: Midband A through I (14-22)		○	○		Operating Condition	5 °C-40 °C (41 °F-104 °F) (Temperature)		○	○
Superband J through W (23-36)		○	○	10 %-75 % (Humidity)			○	○			
Hyperband AA ~ EEE (37-64)		○	○	Dimension (W x H x D)	302 mm x 327 mm x 335 mm		○	○			
Lowband A-5-A-1 (95-99)		○	○	(11-7/8 inch x 12-7/8 inch x 13-3/16 inch)			○	○			
Special CABLE channel 5A (01)		○	○	Weight	9.1 kg (20.1 lbs.)		○	○			
Ultraband 65-94, 100-125		○	○				○	○			

1. PV-C911

2. PV-C921/PV-C921-K/PV-C931W

Weight and dimensions shown are approximate.

Designs and specifications are subject to change without notice.

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## ⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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# 1 SAFETY PRECAUTIONS

## GENERAL GUIDELINES

### 1. IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by  $\Delta$  in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

2. An Isolation Transformer should always be used during the servicing of Combination VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect Combination VCR from being damaged by accidental shorting that may occur during servicing.
3. When servicing, observe the original lead dress, especially the lead dress in the high voltage circuits. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers, shield, and isolation R-C combinations are properly installed.
5. Before turning the receiver on, measure the resistance between B+ line and chassis ground. Connect (-) side of an ohmmeter to the B+ lines, and (+) side to chassis ground. Each line should have more resistance than specified, as follows :
 

B+ Line	Minimum Resistance
115 V	1 k $\Omega$ (Cold chassis ground)
23 V	180 $\Omega$ (Cold chassis ground)
15 V	110 $\Omega$ (Cold chassis ground)
6. When the TV set is not used for a long period of time, unplug the power cord from the AC outlet.
7. Potentials, as high as 20.0 kV is present when this TV set is in operation. Operation of the TV set without the rear cover involves the danger of a shock hazard from the TV set power supply. Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the picture tube to the CRT ground of receiver before handling the tube.
8. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazards.

### LEAKAGE CURRENT HOT CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. For physically operated power switches, turn power on. Otherwise skip step 2.
3. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the receiver, such as screwheads, connectors, etc. When the exposed metallic part has a return path to the

chassis, the reading should be between 1 M $\Omega$  and 12 M $\Omega$ . When the exposed metal does not have a return path to the chassis, the reading must be infinity.

### LEAKAGE CURRENT HOT CHECK

1. Plug the AC cord directly into the AC outlet.  
Do not use a isolation transformer for this check.
2. Connect a 1.5 k $\Omega$ , 10 W resistor, in parallel with a 0.15  $\mu$ F capacitor, between each exposed metallic part on the set and a good earth ground , as shown in Figure 1.
3. Use an AC voltmeter, with 1 k $\Omega$ /V or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 V RMS.  
A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks. Leakage current must not exceed 1/2 mA. In case a measurement is outside of the limits specified, there is a possibility of shock hazard, and the receiver should be repaired and rechecked before it is returned to the customer.

#### Hot-Check Circuit

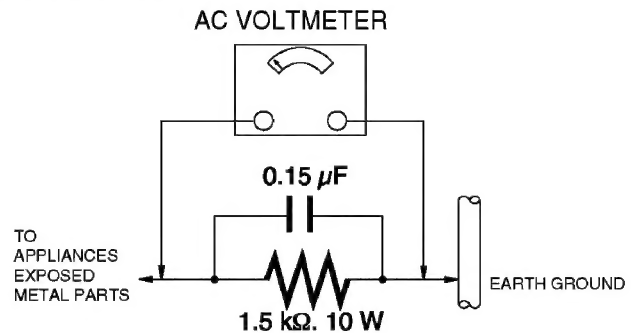


Figure 1

## 2 X-RADIATION

### WARNING :

1. The potential source of X-Radiation in TV sets is the High Voltage section and the picture tube.
2. When using a picture tube test fixture for service, ensure that the fixture is capable of handling 20.0 kV without causing X-Radiation.

### NOTE :

It is important to use an accurate periodically calibrated high voltage meter.

1. Reduce the brightness to minimum.
2. Set the SERVICE switch to SERVICE .
3. Measure the High Voltage. The meter reading should indicate 18.5 kV $\pm$ 1.5 kV.

If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.

4. To prevent an X-Radiation possibly, it is essential to use the specified picture tube.

### HORIZONTAL OSCILLATOR DISABLE CIRCUIT TEST

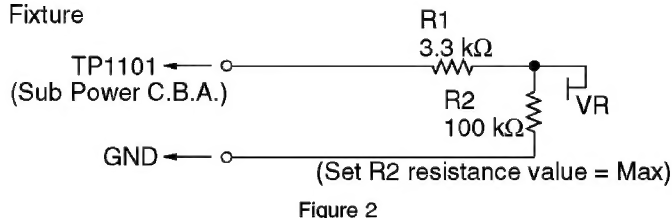
#### SERVICE WARNING :

The test must be made as a final check before set is returned to the customer.

### CONFIRMATION OF X-RAY MOVEMENT

#### 1. Preparation

Fixture



#### 2. Adjustment

- Turn off TV set, and connect the fixture between GND and TP1101 (Sub Power C.B.A.).
- Turn on TV set, and the digital pattern is displayed.
- Confirm that the picture goes out of horizontal sync while changing the VR on the fixture.
  - If the Power goes off while changing the VR, adjust the VR to maximum and turn the TV set back on. Then, reconfirm.
- After confirmation, set the VR back to maximum and turn off the unit. Then, remove the fixture.

### REPAIR PROCEDURES OF HORIZONTAL OSCILLATOR DISABLE CIRCUIT

1. Connect a DC voltmeter between capacitor C513 (+) on the Main circuit board and chassis ground.
2. If approximately +22.8 V is not present at that point when 120 V AC is applied, find the cause. Check R503, R5505, C5507, C513 and D503.
3. Carefully check above specified parts and related circuits

and parts. When the circuit is repaired, try the horizontal oscillator disable circuit test again.

### CIRCUIT EXPLANATION

#### HORIZONTAL OSCILLATOR DISABLE CIRCUIT

The positive DC voltage, supplied from the D503 cathode for monitoring high voltage, is applied to the IC5301 Pin11 through R503 and R5504. Under normal conditions, the voltage at IC5301 Pin 11 is less than approx 3 V. If the high voltage at Flyback Tr Pin 5 exceeds the specified voltage, the positive DC voltage which is supplied from the D503 cathode also increases. The increased voltage is applied to IC5301 Pin11 through R503 and R5504. Due to the increased voltage at IC5301 Pin11, the horizontal oscillator frequency increases, the picture goes out of horizontal sync, the beam current decreases and the picture becomes dark in order to keep X-radiation under specification.

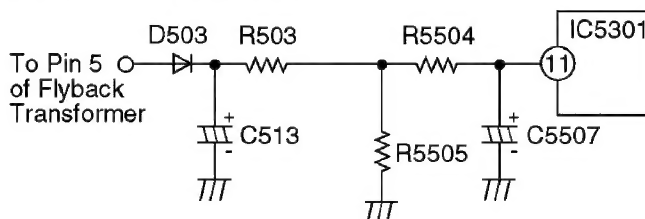


Figure 3



### 3 PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors are semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

**CAUTION:**

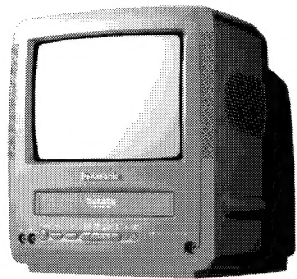
Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

**"NOTE to CATV system installer :**

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical."

## 4 OPERATION GUIDE



Omnivision VHS

# Panasonic

## Combination VCR Operating Instructions

Models No. PV-C911 / PV-C921  
PV-C931W



- Initial Setup and Connection Procedures are on pages 8 to 13.
- SELF-DEMO Procedure is on page 4.



As an **ENERGY STAR®** Partner,  
Matsushita Electric Corporation  
of America has determined that  
this product or product model  
meets the **ENERGY STAR®**  
guidelines for energy efficiency.

Please read these instructions carefully before attempting to connect,  
operate or adjust this product. Please save this manual.

Spanish Quick Use Guide is included.

(Guía para rápida consulta en español está incluida.)

LSQT0341A

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com)

Initial Setup

Basic Operation

TV Operation

Timer Operation

Advanced Operation

For Your Information

# Important Safeguards and Precautions

**READ AND RETAIN ALL SAFETY AND OPERATING INSTRUCTIONS. HEED ALL WARNINGS IN THE MANUAL AND ON UNIT**

## INSTALLATION

### 1 POWER SOURCE CAUTION

Operate only from power source indicated on unit or in this manual. If uncertain, have your Electric Utility Service Company or Video Products Dealer verify your home power source.

### 2 POWER CORD PLUG

For safety, this unit has a polarized type plug (one wide blade), or a three-wire grounding type plug. Always hold the plug firmly and make sure your hands are dry when plugging in or unplugging the AC power cord. Regularly remove dust, dirt, etc. on the plug.

### POLARIZED PLUG CAUTION:

The plug fits into outlet one way. If it cannot be fully inserted, try reversing it. If it still will not fit, have an electrician install the proper wall outlet. Do not tamper with the plug.

### GROUNDING PLUG CAUTION:

The plug requires a three-hole grounding outlet. If necessary, have an electrician install the proper outlet. Do not tamper with the plug.

### 3 POWER CORD

To avoid unit malfunction, and to protect against electrical shock, fire or personal injury:

- Keep power cord away from heating appliances and walking traffic. Do not rest heavy objects on, or roll such objects over the power cord.
- Do not tamper with the cord in any way.
- An extension cord should have the same type plug (polarized or grounding) and must be securely connected.
- Overloaded wall outlets or extension cords is a fire hazard.
- Frayed cords, damaged plugs, and damaged or cracked wire insulation are hazardous and should be replaced by a qualified electrician.

### 4 DO NOT BLOCK VENTILATION HOLES

Ventilation openings in the cabinet release heat generated during operation. If blocked, heat build-up may result in a fire hazard or heat damage to cassettes.

For your protection:

- a. Never cover ventilation slots while unit is ON, or operate unit while placed on a bed, sofa, rug, or other soft surface.
- b. Avoid built-in installation, such as a book case or rack, unless properly ventilated.

### 5 AVOID EXTREMELY HOT LOCATIONS OR SUDDEN TEMPERATURE CHANGES

Do not place unit over or near a heater or regulator, in direct sunlight, etc. If unit is suddenly moved from a cold place to a warm place, moisture may condense in unit and on the tape causing damage.

### 6 TO AVOID PERSONAL INJURY

- Never place unit on support or stand that is not firm, level, and adequately strong. The unit could fall causing serious injury to a child or adult and damage to the unit.
- Move any appliance and cart combination with care. Quick stops, excessive force, and uneven surfaces may cause objects to overturn.
- Carefully follow all operating instructions.



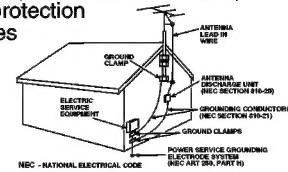
## OUTDOOR ANTENNA INSTALLATION

### 1 SAFE ANTENNA AND CABLE CONNECTION

An outside antenna or cable system must be properly grounded to provide some protection against built up static charges and voltage. Section 810

of the National Electrical Code, ANSI/NFPA 70 (in Canada, part 1 of the Canadian Electrical Code)

provides information regarding proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.



### 2 KEEP ANTENNA CLEAR OF HIGH VOLTAGE POWER LINES OR CIRCUITS

Locate an outside antenna system well away from power lines and electric light or power circuits so it will never touch these power sources should it ever fall. When installing antenna, absolutely never touch power lines, circuits or other power sources as this could be fatal.

## USING THE UNIT

Before unit is brought out of storage or moved to a new location, refer again to the INSTALLATION section of these safeguards.

### 1 KEEP UNIT WELL AWAY FROM WATER OR MOISTURE, such as vases, sinks, tubs, etc.

### 2 IF EXPOSED TO RAIN, MOISTURE, OR STRONG IMPACT, unplug unit and have it inspected by a qualified service technician before use.

### 3 ELECTRICAL STORMS

During a lightning storm, or before leaving unit unused for extended periods of time, disconnect all equipment from the power source as well as the antenna and cable system.

### 4 WHEN UNIT IS PLUGGED IN

• DO NOT OPERATE IF:

- liquid has spilled into unit.
- unit was dropped or otherwise damaged.
- unit emits smoke, malodors, or noises.

Immediately unplug unit, and have it inspected by a service technician to avoid potential fire and shock hazards.

• Never drop or push any object through openings in unit.

Touching internal parts may cause electric shock or fire hazard.

• Keep magnetic objects, such as speakers, away from unit to avoid electrical interference.

### 5 USING ACCESSORIES

Use only accessories recommended by the manufacturer to avoid risk of fire, shock, or other hazards.

### 6 CLEANING UNIT

Unplug unit. Use a clean, dry, chemically untreated cloth to gently remove dust or debris. DO NOT USE cleaning fluids, aerosols, or forced air that could over-spray, or seep into unit and cause electrical shock. Any substance, such as wax, adhesive tape, etc. may mar the cabinet surface. Exposure to greasy, humid, or dusty areas may adversely affect internal parts.

## SERVICE

### 1 DO NOT SERVICE PRODUCT YOURSELF

If, after carefully following detailed operating instructions, the unit does not operate properly, do not attempt to open or remove covers, or make any adjustments not described in the manual. Unplug unit and contact a qualified service technician.

### 2 REPLACEMENT OF PARTS

Make sure the service technician uses only parts specified by the manufacturer, or have equal safety characteristics as original parts. The use of unauthorized substitutes may result in fire, electric shock, or other hazards.

### 3 SAFETY CHECK AFTER SERVICING

After unit is serviced or repaired, request that a thorough safety check be done as described in the manufacturer's service literature to insure video unit is in safe operating condition.

# Safety Precautions / Mesures de sécurité

## Warning:

To prevent fire or shock hazard, do not expose this equipment to rain or moisture.

## Caution:

To prevent electric shock, match wide blade of plug to wide slot, fully insert.

## Avertissement:

Afin de prévenir tout risque d'incendie ou de chocs électriques, ne pas exposer cet appareil à la pluie ou à une humidité excessive.

## Attention:

Pour éviter les chocs électriques, introduire la lame la plus large de la fiche dans la borne correspondante de la prise et pousser jusqu'au fond.

This video recorder, equipped with the HQ (High Quality) System, is compatible with existing VHS equipment. Only use those tapes with the **VHS** mark. It is recommended that only cassette tapes that have been tested and inspected for use in 2, 4, 6, and 8 hour VCR machines be used. This television receiver provides display of television closed captioning in accordance with §15.119 of the FCC rules.

## FCC WARNING:

Any unauthorized changes or modifications to this equipment would void the user's authority to operate.



This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.



This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

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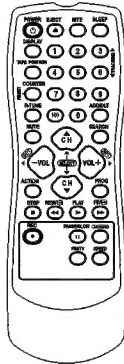
# Before Using

## Congratulations

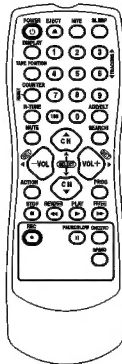
on your purchase of one of the most sophisticated and reliable products on the market today. Used properly, it will bring you and your family years of enjoyment. Please fill in the information below. The serial number is on the tag located on the back of your unit.

Date of Purchase \_\_\_\_\_  
 Dealer Purchased From \_\_\_\_\_  
 Dealer Address \_\_\_\_\_  
 Dealer Phone No. \_\_\_\_\_  
 Model No. \_\_\_\_\_  
 Serial No. \_\_\_\_\_

## Accessories

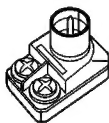


☐ Remote Control  
LSSQ0281  
(PV-C921)  
LSSQ0282  
(PV-C931W)

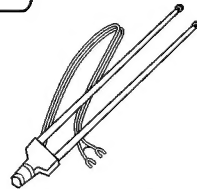


☐ Remote Control  
LSSQ0280  
(PV-C911)

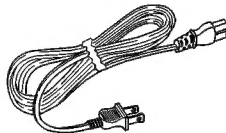
☐ Batteries  
2 "AA"



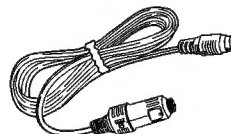
☐ 300 ohm-75 ohm  
Transformer  
VSQS0974



☐ Indoor Antenna  
TSA700009



☐ AC Power Cord  
VJAW0044  
(PV-C911, PV-C921)  
LFX6109A  
(PV-C931W)



☐ DC Car Cord (2m)  
LFX6301A

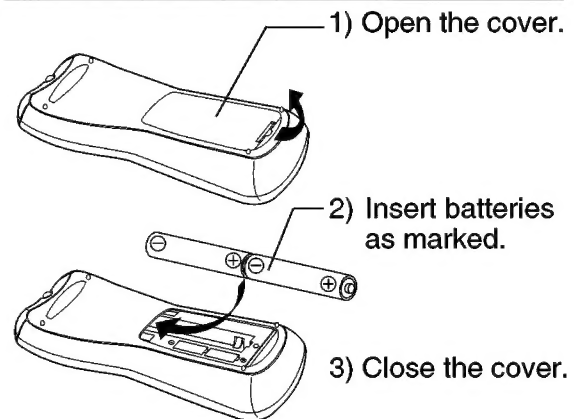
To order accessories, call toll free 1-800-332-5368.

## SELF-DEMO Mode

**With Power ON, press  
PLAY/REPEAT on the  
unit for 7 seconds to  
deactivate the  
SELF-DEMO Mode.**

**Repeat this to display  
demo screen.**

## Loading the Batteries

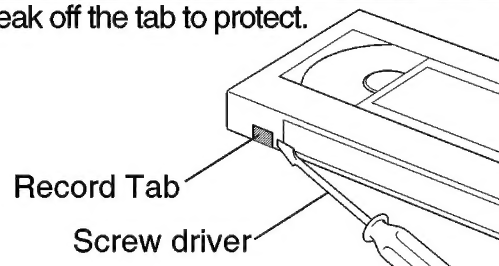


## Battery replacement caution

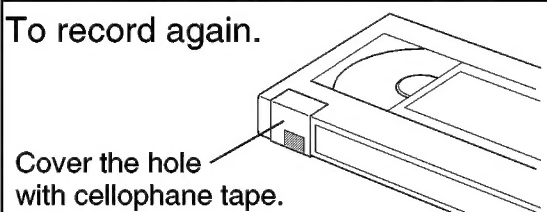
- Do not mix old and new batteries.
- Do not mix alkaline with manganese batteries.

## Prevent Accidental Tape Erasure

Break off the tab to protect.



To record again.

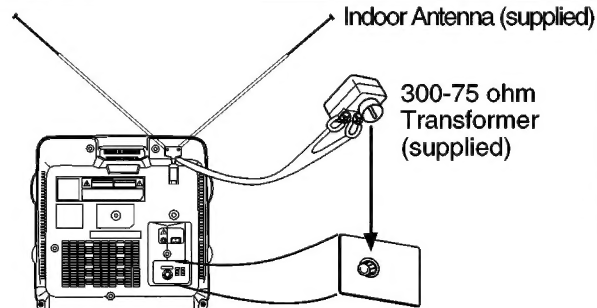




# Connections

## Indoor Antenna Connections

Insert the Indoor antenna (supplied) into the receptacle on the back of the unit. Then, connect the two wires to the 300 ohm-75 ohm transformer (supplied.) Next, connect the transformer to the back of the unit as shown. Now, extend the antenna and adjust its length, direction and angle for the clearest picture.



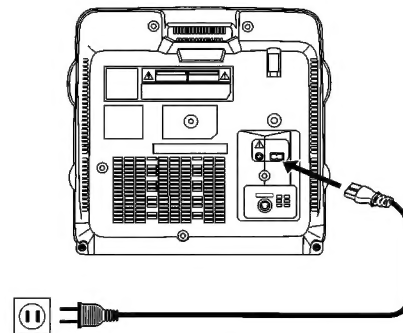
Initial Setup

## Connecting to a Power Source

Your unit goes where you go with two different ways to supply power. You may connect the supplied AC (alternate current) cord for use with any AC outlet. Or when travelling, connect the supplied DC (direct current) Car Battery cord which can be inserted in your vehicle's cigarette lighter. For your safety and to avoid damage to the unit, please follow instructions and connections carefully.

### ■ Connecting the (supplied) AC Cord

1. Connect the supplied AC cord to the AC input jack on the back of the unit as shown.
2. Plug the AC cord into an AC wall outlet.

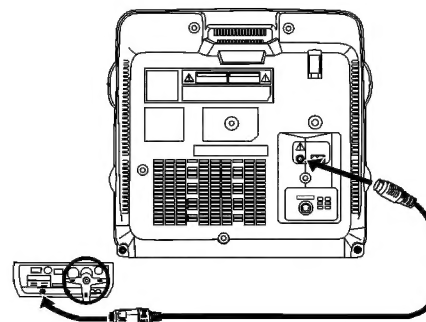


### ■ Connecting the (supplied) DC Cord

1. Connect the DC Car Battery cord to the DC input on the back of the unit as shown.
2. Start the engine of your vehicle.
  - **DO NOT** insert the cord into the cigarette lighter until the engine is running.
3. Remove the cigarette lighter from its socket and insert the Car Battery plug in its place.

#### IMPORTANT NOTES

- This cord can only be used in vehicles equipped with DC 12V or 24V (negative ground) batteries. Check your car's owner's manual.
- Use the only the Car Battery cord packed with your unit.
- To avoid a loss voltage, do not attach an extension to the Car Battery cord.
- When unit is not in use, disconnect the Car Battery cord from the cigarette lighter socket to save car battery.



### ■ Replacing the DC Car Cord Fuse

If the safety fuse in the car cord plug blows out, replace it as follows.

1. Unscrew the cap (counterclockwise.)
2. Replace using a 125V 10A fuse.
  - Only use fuses with the exact voltage and amps specified.
3. Replace the cap (clockwise.)

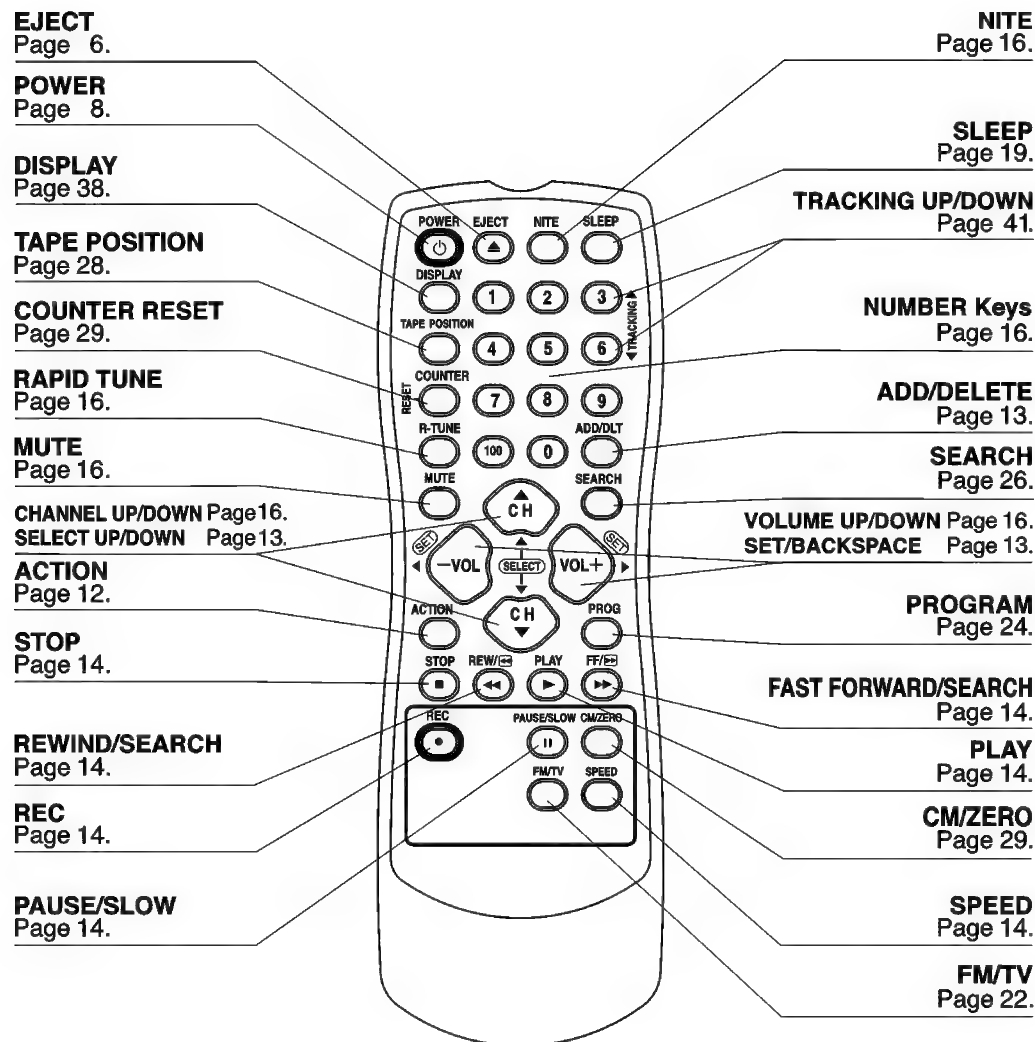


# Location of Controls

## Remote Control Buttons

### EJECT button:

When EJECT is pressed, the tape is ejected from Cassette Compartment.  
If EJECT is pressed during recording, the unit will not respond to the command.

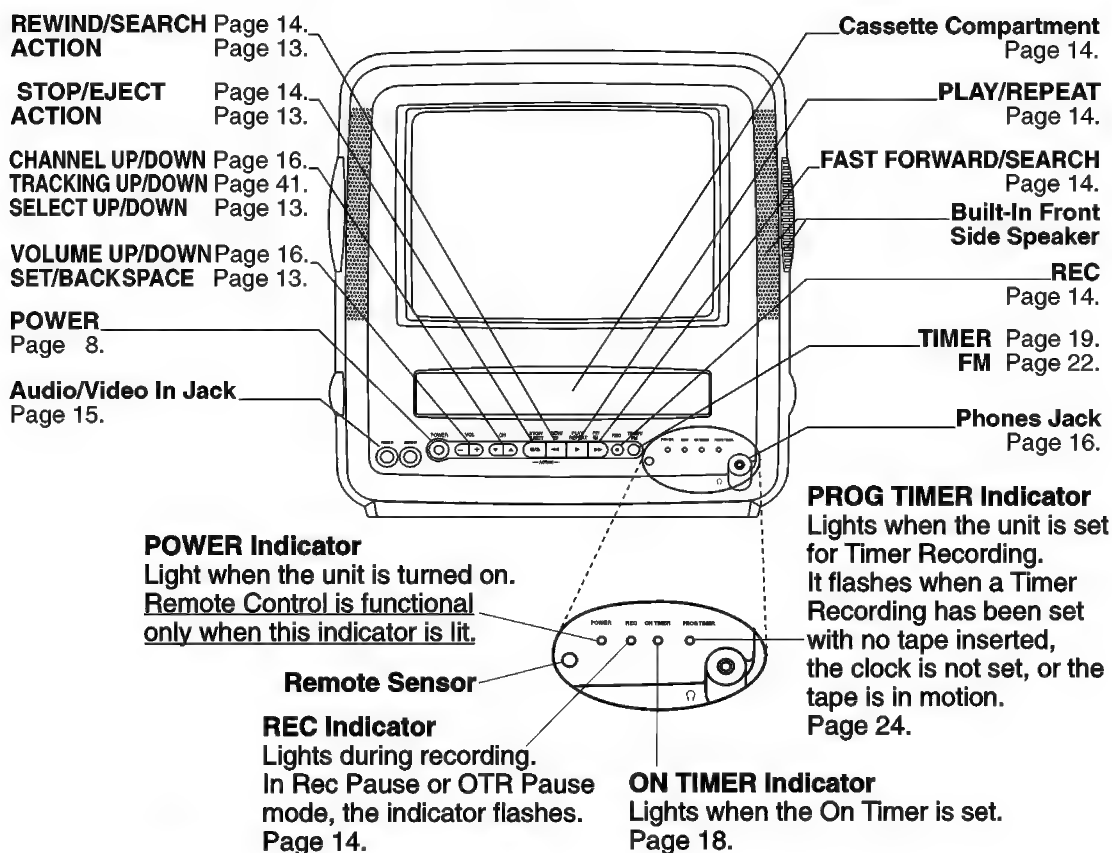


<Model PV-C921/PV-C931W remote shown>



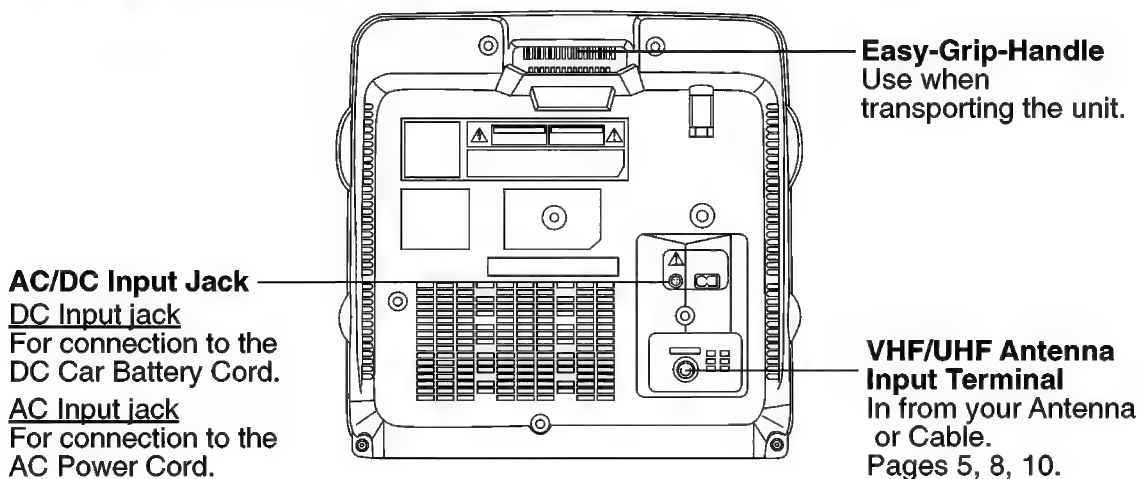
## Front View of the unit and Indicators on the Front Panel

<Model PV-C921/PV-C931W unit shown>



Initial Setup

## Rear View of the unit



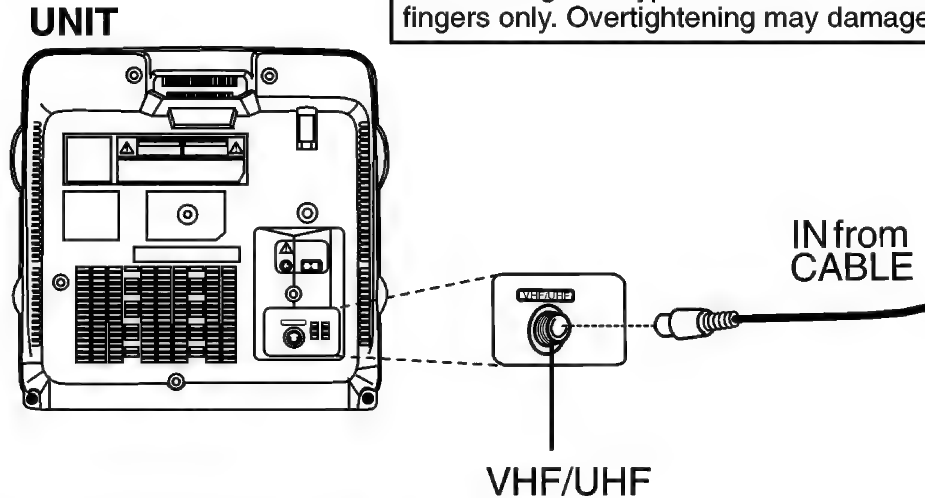
# Initial Setup for ANT. / Cable Connection

## How to Connect

- Connect the Cable from Antenna / Cable to the VHF / UHF terminal on unit.

### WARNING:

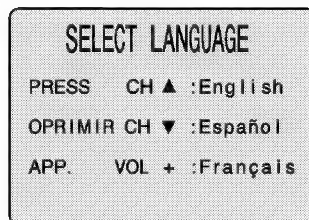
When using "Nut type" RF coaxial cables, tighten with fingers only. Overtightening may damage terminals.



## How to do Initial Setup

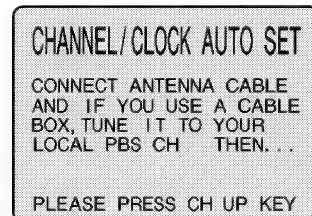
**1** Press **POWER** on the unit.

**2** When the unit is turns on the first time, **SELECT LANGUAGE** screen appears.



**3** Press **CH ▲** to select English.  
OR  
Press **CH ▼** to select Spanish (Español).

OR  
Press **VOL +** to select French (Français).  
CHANNEL/CLOCK AUTO SET screen appears.



- If wrong language is set, complete "Reset all unit Memory Functions" steps page 9.

- 4** Press **CH ▲** Key to start CHANNEL / CLOCK AUTO SET operation. Settings are performed automatically. If the setup is completed, the following screen is displayed.

2/7/2001 WED 12:00PM  
DST:ON  
SETTING : CH 10  
AUTO CLOCK SET  
COMPLETED  
END : PRESS CH UP KEY

If AUTO CLOCK SET IS INCOMPLETE screen appears, set the clock using MANUAL CLOCK SET procedures as below.

AUTO CLOCK SET  
IS INCOMPLETE  
PLEASE SET CLOCK BY  
PRESSING ACTION KEY

## MANUAL CLOCK SET

If AUTO CLOCK SET was incomplete, manually set the clock as follows.

- 1** Press **ACTION** Key on the Remote to display SET CLOCK Menu screen.

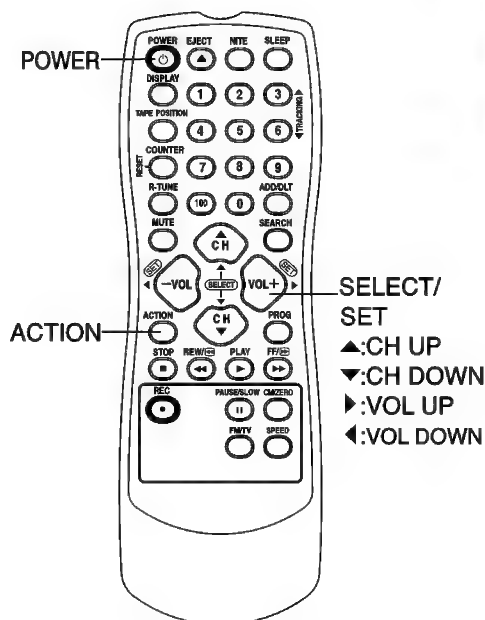
SET CLOCK  
11--/---:--  
DST:ON  
SELECT MONTH  
SELECT : ▲ ▼  
SET : ►  
END : ACTION

- 2** Press **▲▼** to select the month and press **►** to set. In the same manner, select and set the date, year, time, and DST. (Daylight Saving Time).

SET CLOCK  
2/ 7/2001 WED 12:00PM  
DST:ON  
SELECT COMPLETED  
SET : ►  
END : ACTION

- 3** Press **ACTION** Key twice to start CLOCK and exit.

## Initial Setup

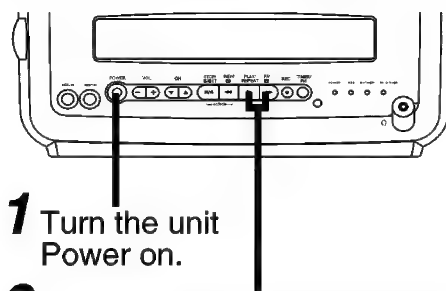


Model PV-C921/PV-C931W remote is shown here.

## Reset all unit Memory Functions

When moving unit to a new location, or if a mistake was made in the Initial Setup section.

- Make sure a tape is not inserted in the unit.

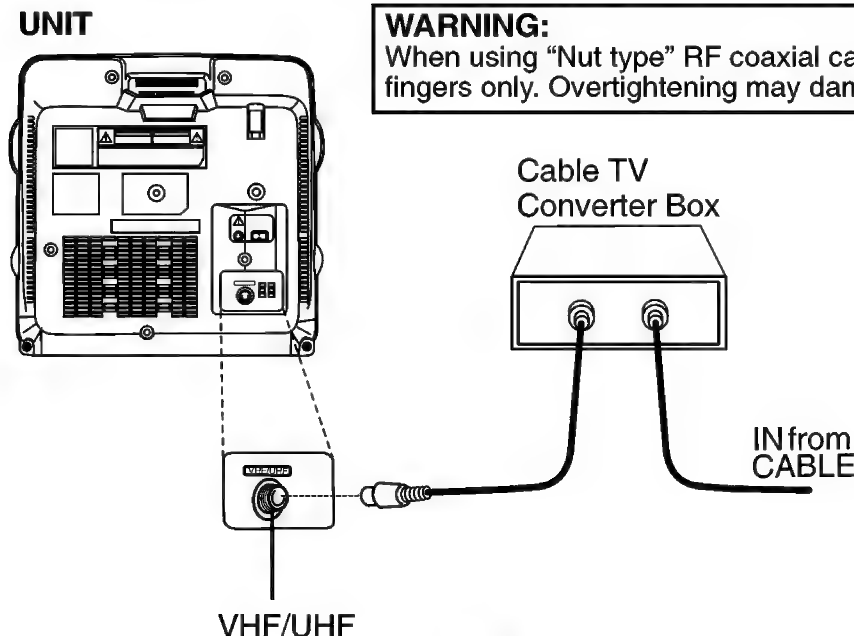


- 1 Turn the unit Power on.
- 2 Press and hold both **PLAY** and **FF** on the unit for more than 5 seconds.
  - The power will shut off.
- 3 Do "Initial Setup" on page 8.

# Initial Setup for DSS / Cable box Connection

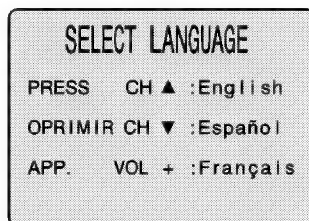
## How to Connect

- Connect the OUT Jack on your cable box to the VHF/UHF terminal on unit with an RF cable.



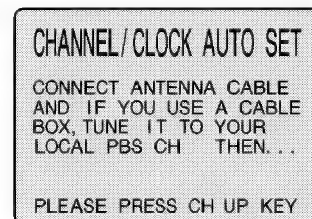
## How to do Initial Setup

- 1 Press **POWER** on the unit.
- 2 When the unit is turns on the first time, **SELECT LANGUAGE** screen appears.



- Turn on your cable box and set it to **PBS(Public Broadcast Station)** channel in your time zone. If you use **DSS** receiver, it must be turned off.

- 3 Press **CH ▲** to select English.  
OR  
Press **CH ▼** to select Spanish (Español).  
OR  
Press **VOL +** to select French (Français).  
**CHANNEL/CLOCK AUTO SET** screen appears.

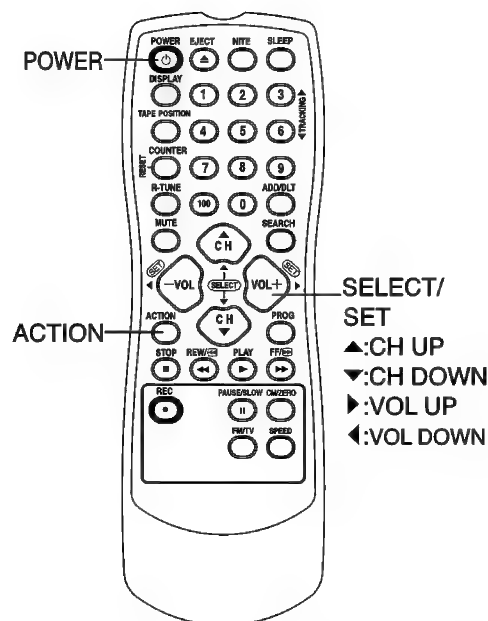


- If wrong language is set, complete "Reset all unit Memory Functions" steps page 9.

10

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com)

## Initial Setup

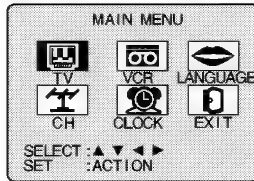


Model PV-C921/PV-C931W remote is shown here.

This reminder is provided to call the CABLE (Cable TV) System Installers attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

# Reset Language, Channels, Clock,

1

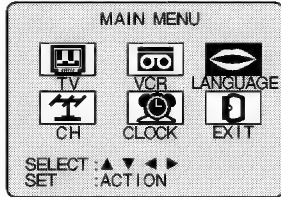


**Press ACTION**  
to display MAIN MENU.

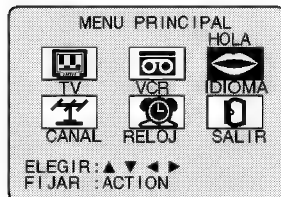
2

## Language

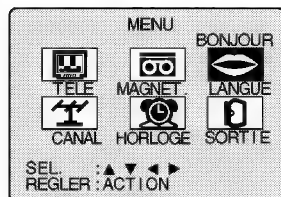
1) Press **▲▼◀▶** to select language icon.



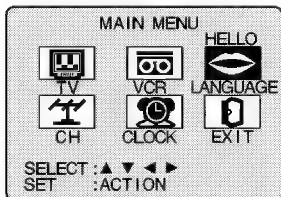
2) Press **ACTION** repeatedly.



For Spanish



For French

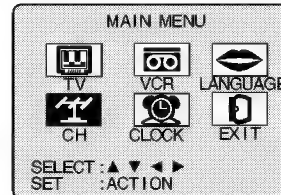


For English

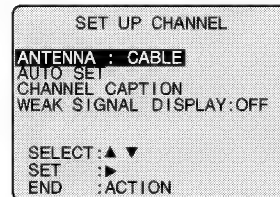
3) Press **▲▼◀▶** to select "EXIT."  
**Press ACTION** to exit.

## Channels

1) Press **▲▼◀▶** to select "CH."



2) Press **ACTION**.



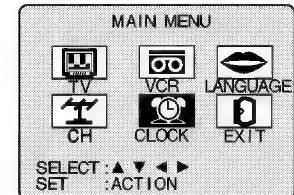
3) Press **▲▼** to select "ANTENNA," then **press ▶** to set your antenna system ("TV" or "CABLE").

4) Press **▲▼** to select "AUTO SET," then **press ▶**.

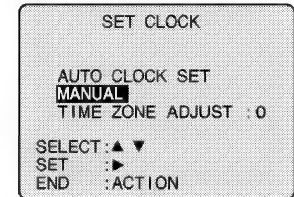
• After Channel Auto Set is finished, Clock Auto Set will be performed.

## Clock

1) Press **▲▼◀▶** to select "CLOCK."



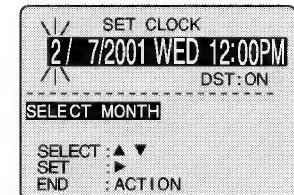
2) Press **ACTION**.



("TIME ZONE ADJUST" appears only when auto clock is set.)

3) Press **▲▼** to select "MANUAL" or "AUTO CLOCK SET" and **press ▶**.

• For Auto Clock Set, select "AUTO CLOCK SET," then **press CH ▲**.



4) Press **▲▼** and **press ▶** to select and set the month, date, year, time, and DST (Daylight Saving Time).

5) Press **ACTION** twice to start the clock and exit this mode.

12

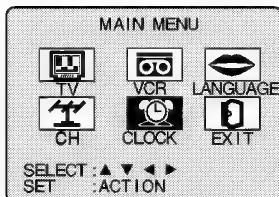
For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com)

# Time Zone Adjust

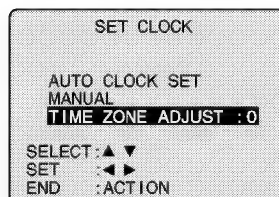
## Time Zone Adjust

(Only when Auto Clock is set.)

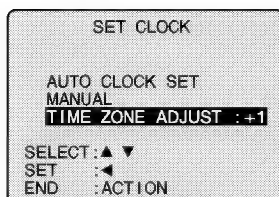
- 1) Press **▲▼◀▶** to select "CLOCK."



- 2) Press **ACTION**.

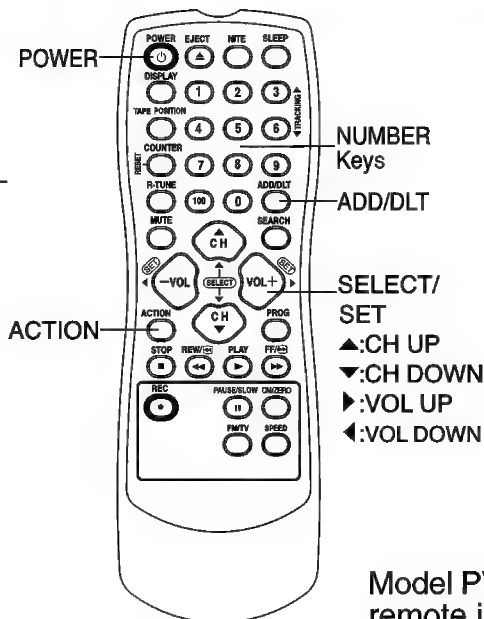


- 3) Press **▲▼** to select TIME ZONE ADJUST and press **◀▶** to subtract or add hour(s) as necessary.



- 4) Press **ACTION** twice to exit.

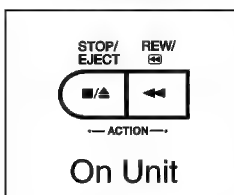
- TIME ZONE ADJUST returns to "0" if clock is set manually.



Model PV-C921/PV-C931W remote is shown here.

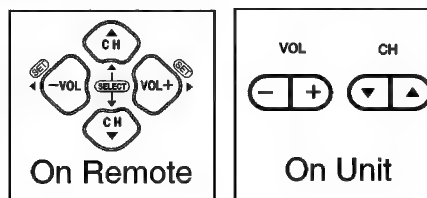
Basic Operation

### ACTION key on the unit



You can operate the menu screen using unit buttons. To display the menu, press STOP/EJECT and REW together with no tape inserted. To exit the menu, repeat above with or without tape inserted until normal screen appears.

### Using ▲▼◀▶ keys

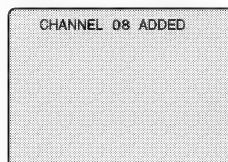


- ▲ : CH UP
- ▼ : CH DOWN
- ▶ : VOLUME UP
- ◀ : VOLUME DOWN

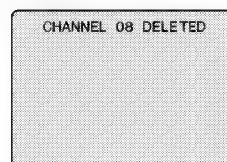
Whenever the menu or program screen is displayed, CHANNEL UP/DOWN function as ▲▼ and VOLUME UP/DOWN function as ▶◀ only.

### Add or Delete a Channel

To add channel: Select channel with number keys and press ADD/HLT.



To delete channel: Select channel with CH ▲▼ or number keys and press ADD/HLT.





# Playback a Tape

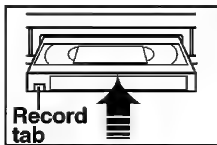
# Record On a Tape



## Ready Check List

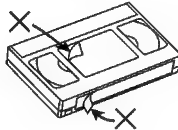
- ☐ All connections are made.
- ☐ Your unit is plugged in.

# 1



## Insert a cassette.

- The unit power comes on automatically.



To prevent tape jam,  
remove loose or peeling labels  
from tapes.

# 2

## Press PLAY.

- Playback begins if cassette has no record tab.

### ■ Forward/Reverse scene search

- Press **FF** or **REW**
- Press again or **PLAY** to release.

### ■ Still (Freeze) picture

- Press **PAUSE/SLOW**
- Press **PLAY** to release.

### ■ Slow Motion picture

- Hold down **PAUSE/SLOW** in Still mode
- Press **PLAY** to release.

### ■ Frame by Frame picture

- Press **PAUSE/SLOW** in Still mode
- Press **PLAY** to release.

## Notes

- These features work best in SLP mode.
- After the unit is in Still or Slow mode for 3 minutes, it will switch to Stop mode automatically to protect the tape and the video head.

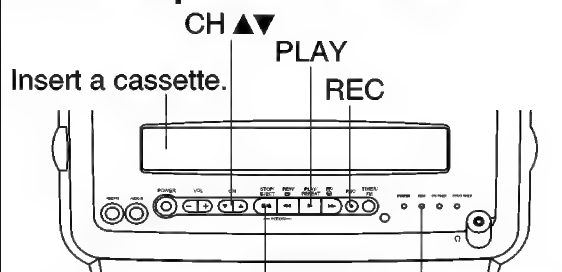
### ■ Stop → Press STOP

### ■ Rewind tape → Press REW in Stop mode

### ■ Fast forward tape → Press FF in Stop mode

### ■ Eject tape → Press EJECT on the remote or STOP/EJECT on the unit

## You can operate on the unit



- Press to stop and/or eject tape. REC Indicator

# 1

## Insert a cassette with record tab.

- The unit power comes on automatically.

# 2

## Press CH ▲▼ or number keys to Select Channel.

- For "LINE" input, see bottom of next page.

# 3

## Press SPEED to select recording speed (see page 41).

- SP = Standard Play
- LP = Long Play
- SLP = Super Long Play

- Selected speed is displayed.

# 4

## Start Recording.

### Press REC.

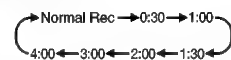
- To edit out unwanted portions, press **PAUSE/SLOW** to pause and resume recording.
- You cannot view another channel during recording.

### ■ Stop → Press STOP

- When using DC Power supply, pressing **POWER** on the remote will cancel Recording in progress.

### ■ One Touch Recording (OTR)

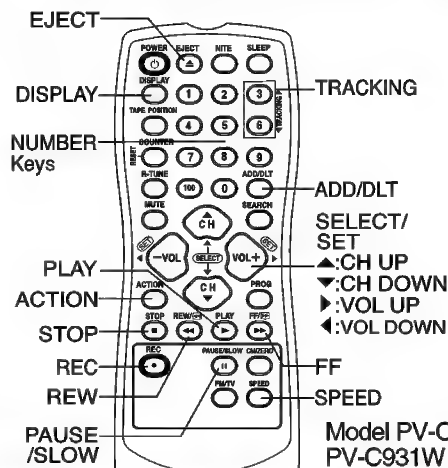
Press **REC** repeatedly to set the recording length (30 min - 4 hours.)



- The unit stops recording at a preset time.
- **PROG TIMER** indicator lights on the unit.

## Notes

- After the unit has been in Rec Pause mode for 5 minutes, it will stop automatically to protect the tape and the video head.
- The remaining recording time of an OTR can be displayed by pressing **DISPLAY**.
- When using DC Power supply, pressing **POWER** on the unit will cancel an OTR in progress.



Model PV-C921/  
PV-C931W remote is  
shown here.

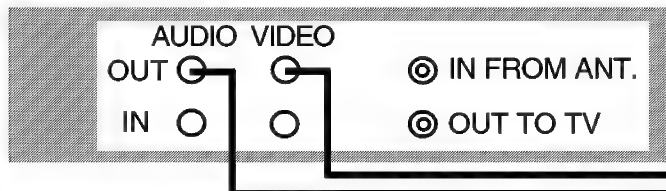
# 14

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com)

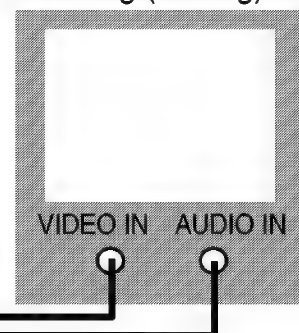
# Copy Your Tapes (Dubbing)

Connections you'll need to make.

Playing (Source) VCR



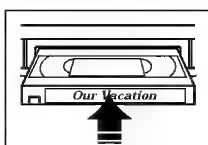
Recording (Editing) unit



Basic Operation

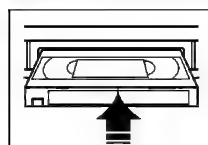
## Playback (Source)

1



Insert pre-recorded tape.

## Recording (Editing) unit



Insert blank tape with record tab.

• Dubbing tapes protected with Copy Guard will have poor quality results.

2

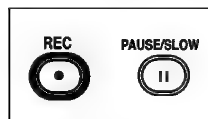
Select "LINE" mode.

See "Selecting Input Mode" below.

3



Press **PLAY** then **PAUSE** at starting point to put in Standby mode.



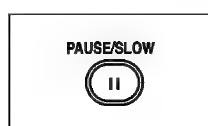
Press **REC**, then **PAUSE/SLOW** immediately to put in Standby mode.

(Perform operation of steps 4 and 5 on both units at same time.)

4

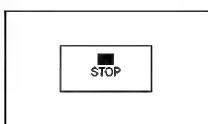


Press **PLAY** to start dubbing.

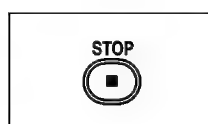


Press **PAUSE/SLOW** to start dubbing.

5



Press **STOP** to stop dubbing.



Press **STOP** to stop dubbing.

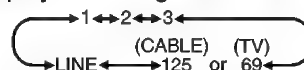
### Caution

- Unauthorized exchanging and/or copying of copyrighted recordings may be copyright infringement.

## Selecting Input Mode

Method 1:

Press **CH ▲▼**. The display will change as follows.



Method 2:

a Press **ACTION** for MAIN MENU.

b Press **▲▼◀▶** to select "TV", then press **ACTION** for SET UP TV screen.

c Press **▲▼** to select "INPUT SELECT," and then press **▶** to select "TUNER" or "LINE."

d Press **ACTION** twice to exit this mode.

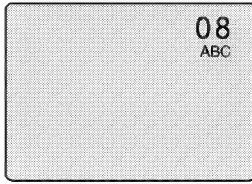
# TV Operation

- 1** Press **POWER** on the remote or unit.

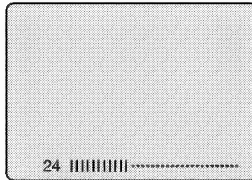
☒ **Ready Check List**

- ☐ All connections are made.  
☐ Your unit is plugged in.

- 2** Use **CH ▲▼** or **number keys** to select a channel.

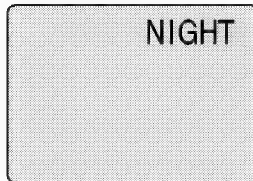


- 3** Press **VOL +** or **VOL -** to adjust volume.



## NIGHT (NITE) Mode

Color and picture intensity levels are adjusted so the screen is easier on your eyes during night time use.

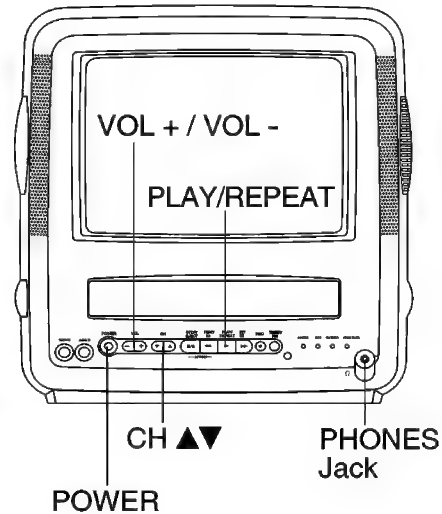


**Press NITE** to set NIGHT mode.

- NIGHT mode may be selected when watching TV, playing a tape, or while in FM mode.

**Press NITE** to cancel.

- Previous settings are restored.
- NIGHT mode is canceled when power is turned off or power failure occurs.



## ■ Using the 100 key

When selecting CABLE channels 100 to 125 with the number keys, first press the 100 key, and then enter the remaining two digits.

## ■ Rapid Tune

Press R-TUNE to display the last channel you were watching.

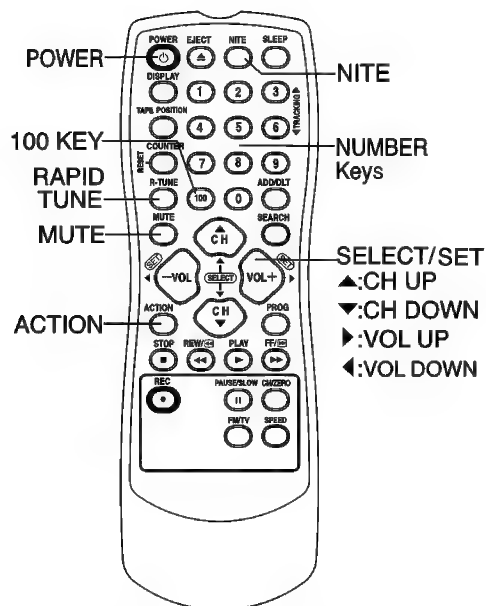
## ■ Audio Mute

Press MUTE to instantly mute the sound. Press again to restore the previous sound level.

## ■ Phones

Connect an earphone (not supplied) or headphones (not supplied) to the Phones Jack.

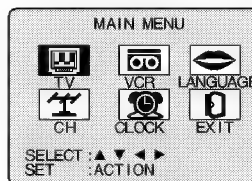
# Picture Adjustment



Model PV-C921/PV-C931W remote is shown here.

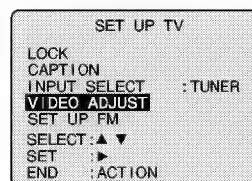
**1** Press **ACTION** to display MAIN MENU.

**2**



1) Press **▲▼◀▶** to select "TV."  
2) Press **ACTION** to display SET UP TV screen.

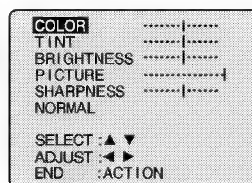
**3**



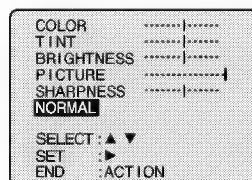
1) Press **▲▼** to select VIDEO ADJUST.  
2) Press **▶** to display screen.

<Model PV-C921/  
PV-C931W screen shown>

**4**



1) Press **▲▼** to select an adjustment item. (See below left.)  
2) Press **◀▶** to adjust.



**To Reset Picture Controls.**  
Press **▲▼** and **▶** to select and set "NORMAL."  
All controls return to their factory settings.

## Picture Adjustment

- **COLOR Control**  
Adjust color intensity.
- **TINT Control**  
Adjust for natural flesh tones.
- **BRIGHTNESS Control**  
Adjust picture brightness.
- **PICTURE Control**  
Adjust picture intensity by adjusting both contrast and color level in the proper balance.
- **SHARPNESS Control**  
Adjust picture sharpness.

**5** Press **ACTION** three times to exit.

### Note

Due to the earth's magnetic fields, or magnetic charge build-up from nearby electrical appliances, color distortion may occur if the unit direction is changed while it is on. To avoid this, position the unit before turning it on. If this phenomenon does occur, press the POWER-off and then on again.

TV Operation

# TV Timer Features

## ON-TIMER with Alarm

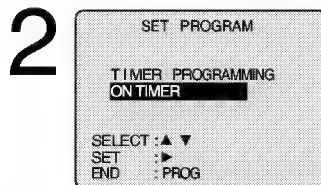
This unit can be set to automatically power on in one of 3 modes (2modes [PV-C911 only]).

(TV, Playback, or FM radio [PV-C921/PV-C931W only].)

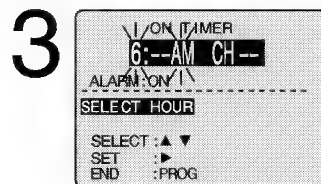
(TV or Playback [PV-C911 only].)

You can also combine the On-Timer with a one minute alarm that gradually increases in volume.

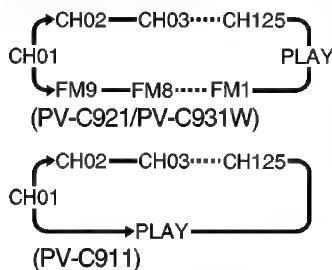
**1 Press PROG**  
to display SET PROGRAM screen.



- 1) Press ▲▼ to select "ON TIMER."
- 2) Press ► to display ON TIMER screen.



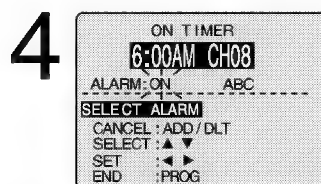
### •ON-TIMER mode selection order



- 1) Press ▲▼ to select desired settings.
- 2) Press ► to set the ON-TIMER TIME or ON-TIMER mode.

• Make sure a tape is inserted if Playback mode is selected.

• See "FM Radio" on page 22 for instructions on how to preset FM stations. (PV-C921/PV-C931W only)



Press ▲▼ to select ALARM "ON" or "OFF."

When "ON" is selected, an alarm will gradually increase in volume for one minute or until canceled by pressing any button (including VOL + -).

To Make Corrections, use ▲▼ and ◀▶ to move back and correct.

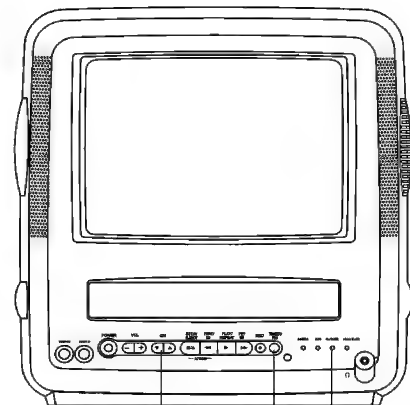
**5 Press PROG**  
to set ON TIMER.

- "ON TIMER SET" is displayed.
- ON TIMER Indicator lights on the unit.

**18** For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com)

## ✓ Ready Check List

- ☐ The clock is set to correct time.



CH ▲▼

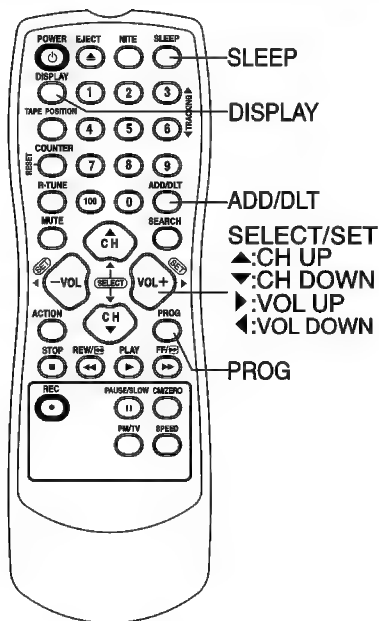
ON TIMER Indicator

TIMER/FM (PV-C921/PV-C931W)  
TIMER (PV-C911)

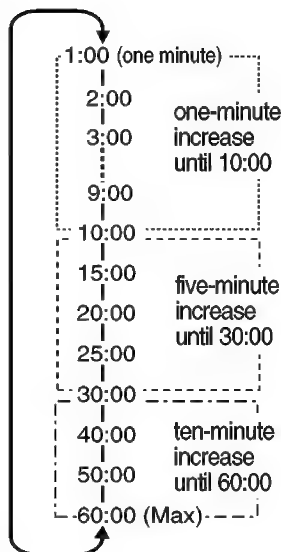
**To Cancel ON-TIMER set,**  
Repeat steps 1 and 2.  
Then, press ADD/HLT to clear the time in step 3. Now, press PROG to end. "ON TIMER END" briefly appears on-screen.

### Note

If no button on the remote or unit (including a button used to turn off the alarm) is pressed within 60 minutes after unit turns itself on, it will turn itself back off.



Model PV-C921/PV-C931W remote is shown here.



### Note

While timer function is in progress, you can change channels on the unit with CH ▲▼ while "CANCEL/SET" screen is not displayed.

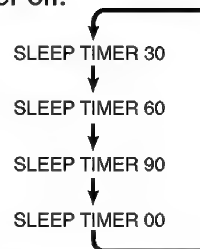
## SLEEP TIMER

This unit can be set for auto power off.

**Press SLEEP** repeatedly to set SLEEP TIMER.

• **Pressing DISPLAY** with sleep timer set displays remaining time.

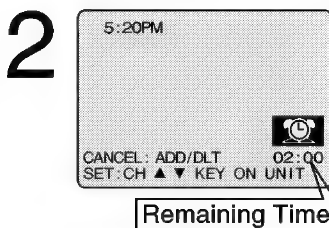
**Press SLEEP** repeatedly until "SLEEP TIMER 00" appears to cancel.



## INSTANT ALARM

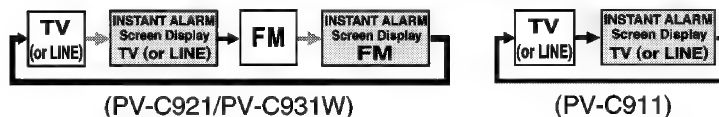
You can set a timer alarm up to 60 min. Useful when you are cooking, etc.

**1 Press TIMER/FM (PV-C921/PV-C931W) [TIMER (PV-C911)] on the unit to display the instant alarm CANCEL/SET screen.**



**Press CH ▲▼ on the unit with CANCEL/SET screen displayed to set alarm.** (Time changes in the order shown left.)

• **Pressing Press TIMER/FM (PV-C921/PV-C931W) [TIMER (PV-C911)] repeatedly on the unit will change display as follows.**



**To cancel,** press TIMER/FM (PV-C921/PV-C931W) [TIMER (PV-C911)] then press ADD/HLT on the remote while CANCEL/SET screen is displayed.

**To increase timer in progress,** repeat step 2. Time will be rounded up to next 1, 5, or 10 minute interval. (See chart left.)

<Example>

- If current time remaining is 12:15, countdown will restart from 15:00.
- If current time remaining is 9:15, countdown will restart from 10:00.

**3 Alarm will sound at 0: 00. Press any button to stop**

- The volume of the alarm gradually increases for one minute and then continues to beep until any button is pressed.

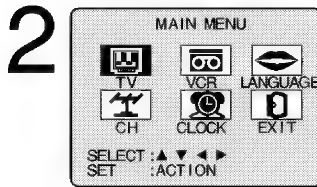
# Closed Caption System

## Closed Caption is ...

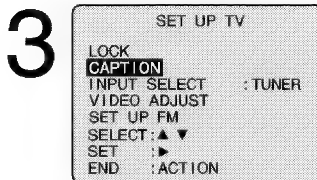
This multi-use system not only allows the hearing impaired to enjoy selected programs, but also makes useful information from TV stations available to everyone.

## Closed Caption Mode Feature

- 1 Press ACTION**  
to display MAIN MENU.

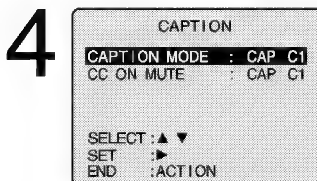


- 1) Press ▲▼◀▶ to select "TV."  
2) Press ACTION to display SET UP TV screen.

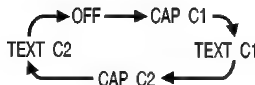


- 1) Press ▲▼ to select "CAPTION".  
2) Press ▶ to display CAPTION screen.

<Model PV-C921/  
PV-C931W screen shown>



- 1) Press ▲▼ to select CAPTION MODE.  
2) Press ▶ repeatedly to select mode. (See left.)



- 5 Press ACTION** three times  
to return to the normal screen.

## Closed Caption Mode Selections

### Caption Mode: CAP C1 or C2

A narration of selected TV programs is displayed.

Check TV program listings for CC(Closed Caption) broadcasts.

### Caption Mode: TEXT C1 or C2

The lower half of the screen will be blocked out. When the TV station broadcasts information, such as program listings, it will appear in this space.

### Caption Mode: OFF

Closed Caption / Text narration will not be displayed.

### NOTE :

The closed caption or text signal may be broadcast over C1, C2, or both.

Also, text contents can vary so you may wish to try different settings.

## Recording and Playing Back a Closed Caption/Text Program

**Record** : Record normally.

Closed Caption/ Text signal, if present, is recorded automatically.

**Playback** : Start playback. Do above steps to select desired caption mode.

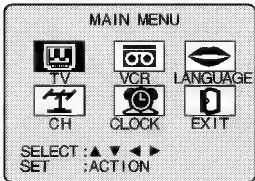


## Caption On Mute Feature

Closed Caption narration, if available, is displayed when MUTE button is pressed for silence.

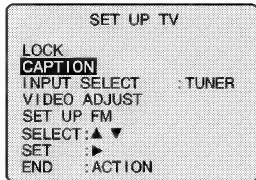
- 1 Press **ACTION** to display MAIN MENU.

- 2
 



1) Press **▲▼◀▶** to select "TV."  
2) Press **ACTION** to display SET UP TV screen.

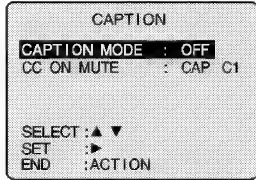
- 3
 



1) Press **▲▼** to select "CAPTION".  
2) Press **▶** to display CAPTION screen.

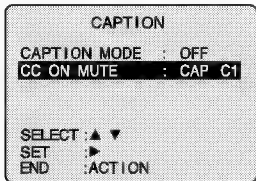
<Model PV-C921/  
PV-C931W screen shown>

- 4
 

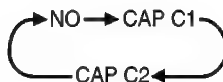


1) Press **▲▼** to select CAPTION MODE.  
2) Press **▶** repeatedly to select "OFF."

- 5
 



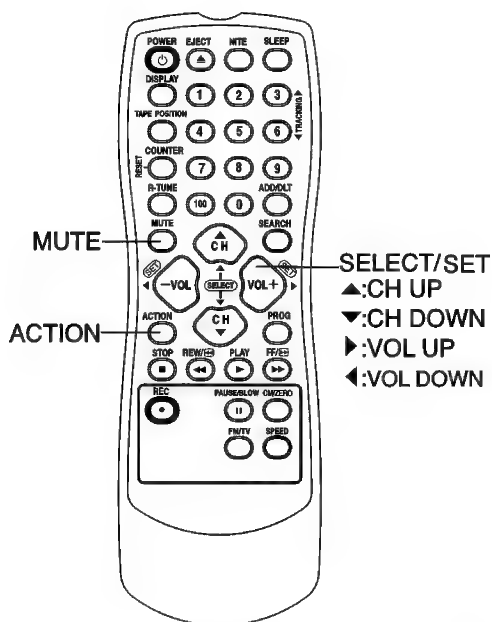
1) Press **▲▼** to select CC ON MUTE.  
2) Press **▶** repeatedly to select desired mode.



- Each press of **▶** will change the display as shown left.
- The caption may be broadcast over CAP C1 or C2.

- 6 Press **ACTION** three times to return to the normal screen.

- 7 Press **MUTE** to mute the sound and display closed captioning.
  - To cancel, press MUTE again.



Model PV-C921/PV-C931W remote is shown here.

TV Operation

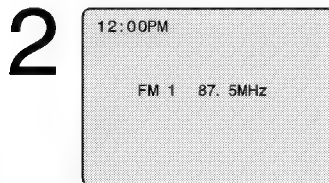
# FM Radio

## FM Radio is ...

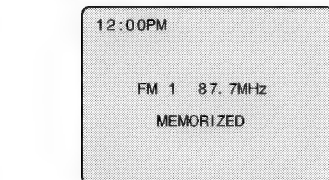
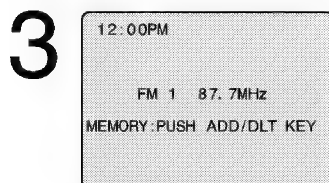
This unit has an FM radio with built-in antenna, 9 station preset, and a band range of 87.5 ~ 108.1 MHz. You can even set the On-Timer (page 18) to wake up to your favorite radio station.

## FM Radio Setup

- 1 Press **FM/TV** on the remote or press **TIMER/FM** twice on the unit to display FM radio mode.



- 2 Press a number key (1~9) to select the FM number.



- 1) Press **CH ▲▼** to select the desired radio station. (Each press changes frequency 200 KHz.)
- 2) Press **ADD/ DLT** to set the radio station.

Hold down **CH ▲** or **▼** for a few seconds, then release to quickly scan for FM stations in your area.

- To cancel, press **CH ▲** or **▼** while in search mode.

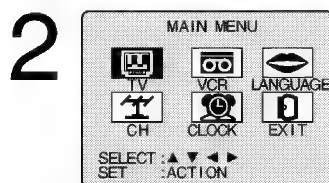
To Make Corrections, select station with a number key, then do step 3 again.

To exit FM mode, press **FM/TV** on the remote or **TIMER/FM** twice on the unit.

## FM ANTENNA Setup

Make sure FM tuning is done correctly (see FM Radio Setup).

- 1 Press **ACTION** to display MAIN MENU.

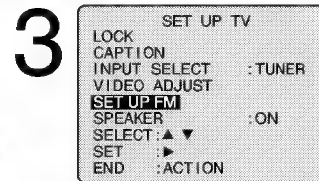


- 1) Press **▲▼◀▶** to select "TV."
- 2) Press **ACTION** to display SET UP TV screen.

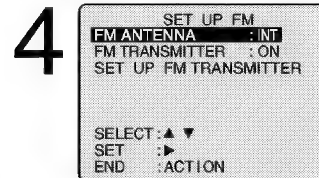
22

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com)

## <For Model PV-C921/PV-C931W only>



- 1) Press **▲▼** to select **SET UP FM**.
- 2) Press **▶** to display screen.



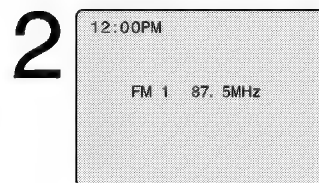
- 1) Press **▲▼** to select **FM ANTENNA**.
- 2) Press **▶** to select "INT (INTERNAL)" or "EXT (EXTERNAL)" whichever sounds the best.

- For cable TV users → "INT"
- For antenna users → "EXT"

- 5 Press **ACTION** three times to end setup.

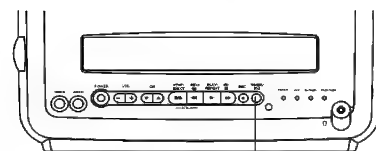
## Using FM Radio

- 1 Press **FM/TV** on the remote or press **TIMER/FM** twice on the unit to display FM radio mode.



- 2 Press a number key (1~9) to select a preset FM number (see steps 2 and 3 on this page).

To cancel, press **FM/TV** on the remote or **TIMER/FM** twice on the unit.

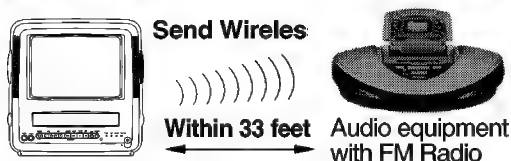


TIMER/FM

### Notes

- FM radio cannot be recorded on a Video cassette.
- You may get better reception by repositioning the unit.
- You cannot select FM Radio mode during playback or record, or while a blue back screen (PROG, ACTION, MENU) is displayed.
- Once stations are set, the selected station and current time are displayed when FM Radio mode is entered. To remove time, press **DISPLAY**. If **DISPLAY** is pressed, the unit status screen appears.

# FM Transmitter



Carrier Frequency : 93 ~ 97, 99 ~ 103 MHz

## FM Transmitter is ...

a feature whereby this unit's sound can be heard on an FM Radio. First, tune your radio to a vacant station which has no radio broadcasts between 93 ~ 97 or 99 ~ 103 MHz. Then, set the combo to the same station. Now, fine-tune this unit so the sound comes in clearly.

## FM Transmitter Carrier Frequency Setup

**1** Press **ACTION** to display MAIN MENU.

**2**

1) Press **▲▼◀▶** to select "TV."

2) Press **ACTION** to display SET UP TV screen.

**3**

1) Press **▲▼** to select SET UP FM.

2) Press **▶** to display screen.

**4**

1) Press **▲▼** to select SET UP FM TRANSMITTER.

2) Press **▶** to display screen.

- When step 4 is done, if FM TRANSMITTER is "OFF," the unit is automatically set to "ON."

**5**

1) Press **▲▼** to select the desired frequency range. (93-97 or 99-103 MHz)

2) Press **◀▶** to select the Carrier Frequency.

3) Press **ACTION** to set the Carrier Frequency. (The screen in step 4 is redisplayed.)

**To Make Corrections,** select frequency with CH **▲▼◀▶**, then repeat step 5.

**6** Press **ACTION** four times to end setup

<For Model PV-C921/PV-C931W only>

## FM Transmitter Control

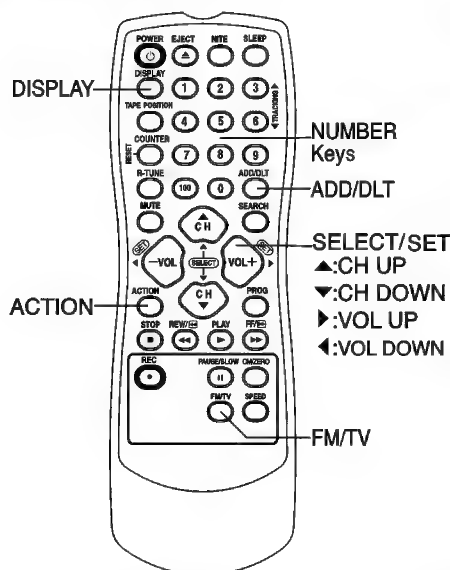
**1** Do "FM Transmitter Carrier Frequency Setup" steps 1~3 at left.

**2**

1) Press **▲▼** to select FM TRANSMITTER.

2) Press **▶** to select "OFF" or "ON."

**3** Press **ACTION** three times to end setup



Model PV-C921/PV-C931W remote is shown here.

## Notes

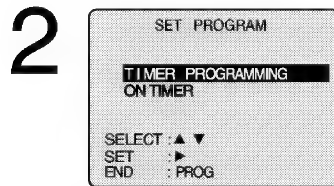
- The Carrier Frequency shown by the selector bar is a guide only. Please listen to the sound and adjust accordingly.
- The unit will transmit sound when unit power is on and "FM TRANSMITTER :ON" is selected.
- When unit power is turned off, "FM TRANSMITTER" returns to "OFF" setting.
- The FM transmitter signal range varies depending on installation and operating requirements of your equipment.
- Interference occurs when you select CATV channels 95, 96, or 97, while FM Transmitter is operating.
- FM Transmitter will not work in FM Radio Mode.
- Please note the current FM Transmitter capability is the maximum level allowed by FCC standard for low power license-exempt radio communication devices.

TV Operation

# Timer Recording

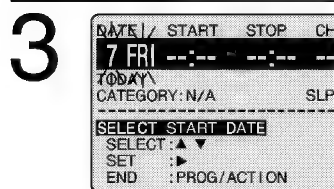
You can set up to 8 programs to be recorded while you are away.

- 1 Press PROG**  
to display SET PROGRAM screen.



- 1) Press ▲▼ to select  
TIMER PROGRAMMING.  
2) Press ► to display  
screen.

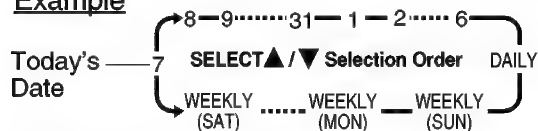
• If a program is already in memory, press ▲▼, and ► to select an unused program number.



- Press ▲▼ to select and ► or ◀ to set the recording DATE.

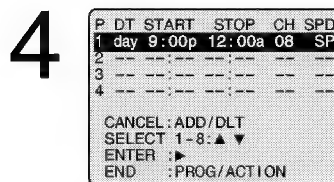
• 1~31 = One time  
• DAILY = MON~FRI  
• WEEKLY SUN~SAT  
= Same time once a week

## Example



## Repeat step 3 to set:

- start time, stop time
- Channel (or LINE for outside source)
- Category [N/A (not applicable), SPORTS, MOVIE, COMEDY, MUSIC, DRAMA]
- Speed (SP, LP, SLP)



- Press PROG  
(or ACTION) to end  
the program.

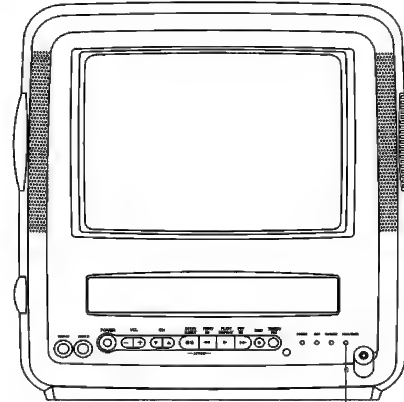
To Enter More Programs  
Press ▲▼ to select and ► to set a blank program number, and then repeat step 3.

- 5 Press PROG twice (or ACTION) to exit this mode.**

- If you're using a cable box, make sure that it is tuned to the desired channel and the power is left on for timer recording.
- PROG TIMER indicator lights on the unit.

## ✓ Ready Check List

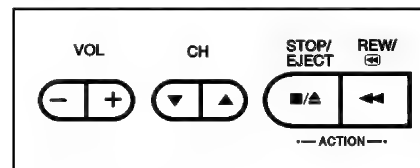
- ☐ All connections are made.
- ☐ Your unit is plugged in.
- ☐ The clock is set to correct time.
- ☐ The tape is long enough.
- ☐ The record tab is in place.



PROG TIMER Indicator

## Timer Recording Using unit Buttons

You can set a Timer Recording using ACTION key on the unit.  
(See page 13.)

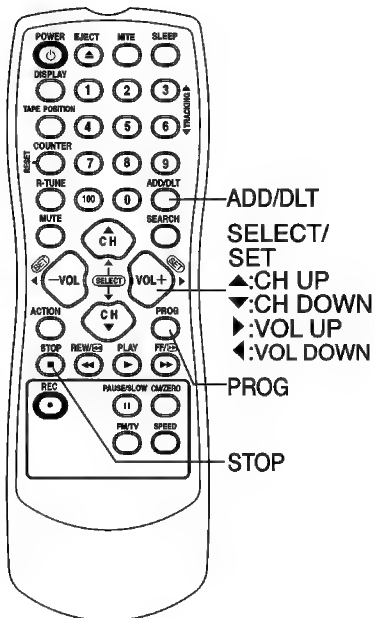


- 1 Press STOP/EJECT and REW together without a tape inserted to display MAIN MENU.
- 2 Press ▲▼ + - to select "VCR" and STOP/EJECT and REW together to display SET UP VCR screen.
- 3 Press ▲▼ to select "TIMER PROGRAM" and + to display the TIMER PROGRAM screen.
- 4 Repeat main steps 3 ~ 5.

### Cancel a Timer Recording: (Recording is in progress)

Hold down STOP for a few seconds to cancel the Timer Recording.

- Any future daily or weekly recordings will be performed as programmed.



Model PV-C921/PV-C931W remote is shown here.

### Review, Replace or Clear Program Contents : (Recording is not in progress)

**1** Repeat steps 1 and 2 on page 24.

**2**

P	DT	START	STOP	CH	SPD
1	day	9:00p	12:00a	08	SP
2	8	10:00a	12:00p	125	SP
3	10	8:00p	9:00p	10	SP
4	SU	9:00p	10:00p	L	LP

CANCEL:ADD/HLT  
SELECT 1-8:▲▼  
ENTER ►  
END :PROG/ACTION

Press ▲▼ to select the desired program.

**3** To Replace program...

DATE /	START	STOP	CH
8 SAT	9:00P	12:00A	08
TODAY			ABC
CATEGORY:MOVIE			SP

SELECT:START DATE  
SELECT:▲▼  
SET:◀▶  
END :PROG/ACTION

- Press ► to display.
- Press ▲▼ to select and press ◀ or ▶ to set new program contents.
- Press PROG (or ACTION)

To Clear program...

P	DT	START	STOP	CH	SPD
1					
2	8	10:00p	12:00a	125	SP
3	10	8:00p	9:00p	10	SP
4	SU	9:00p	10:00p	L	LP

SELECT 1-8:▲▼  
ENTER ►  
END :PROG/ACTION

Press ADD/HLT.

**4** Press PROG twice (or ACTION) to exit this mode.

#### Notes

- 2 minutes before Timer recording is performed, "PLEASE PREPARE FOR TIMER REC" appears and/or the PROG TIMER Indicator flashes. Be sure a cassette with record tab is loaded and the unit is in Stop mode.
- If the start times of two programs overlap, the lower numbered program will have priority.
- If the start time for a Timer Recording comes up during a normal recording or One Touch Recording (page 14), the Timer Recording will not be performed.
- If there is a power interruption of more than one minute, the recording may not be performed or continued.
- If "INCOMPLETE" appears after all items have been set, check all entries and make necessary corrections.
- When using DC Power supply, a Timer Recording can not be performed if POWER on the unit is pressed OFF.

Timer Operation

Each time a recording is made, an invisible index mark is placed on the tape. When timer recordings are made, program index and information are also included. (Only AC POWER) These index marks can be used to access or scan recordings.

Go directly to the desired recording.

INDEX SEARCH  
ENTER INDEX NUMBER:1  
USING 1-9 KEYS  
  
FORWARD SEARCH:FF  
REVERSE SEARCH:REW  
NEXT : SEARCH  
EXIT : STOP

**Press SEARCH** in Playback or Stop mode to display INDEX SEARCH screen.

**Press number keys**  
to select the  
recording number.  
• To calculate  
number, see below.

INDEX SEARCH

FORWARD SEARCH:FF  
REVERSE SEARCH:REW

**Press FF or REW**  
to start search.

- Play begins at search end. To search forward or back 1 index, **press FF or REW** while screen left in displayed (10 seconds).

**Example 1:**  
To go to rec. 2 from rec. 4, enter 3 and press REW.

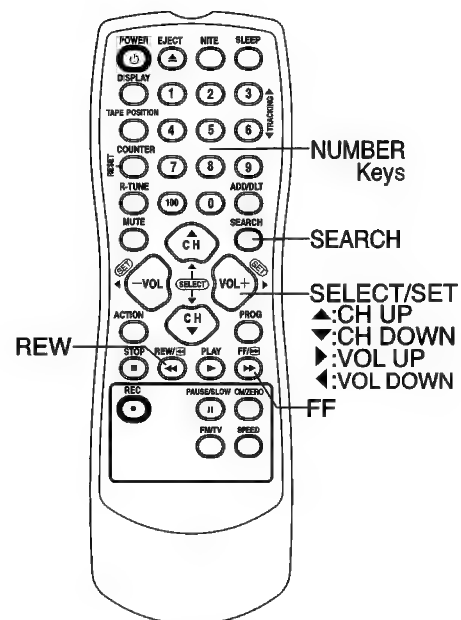


To go to rec. 6 from rec. 2, enter 4 and press FF.



## Notes

- Make each entry within 10 seconds, or the Index Search mode will be canceled.
- If Index Search is started very close to an index mark, that index mark may not be counted in the search.



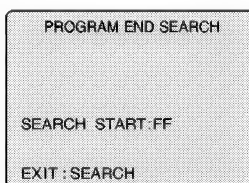
Model PV-C921/PV-C931W remote is shown here.

## Program End Search

It is easy to detect the end of a recorded program so that you may continue or begin a new recording.

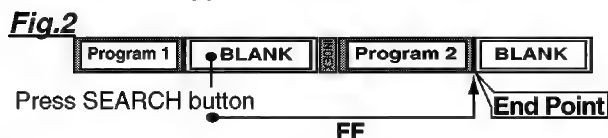
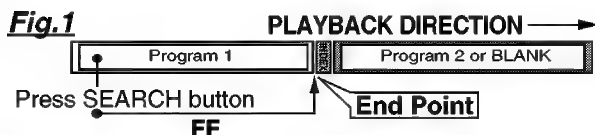
**1 Press SEARCH** twice in Playback or Stop mode to display PROGRAM END SEARCH screen.

**2**

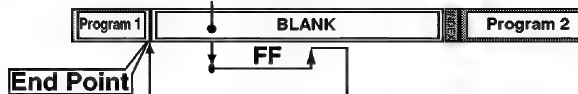


**Press FF**  
to start search.

Example of **Program End Search** operation.

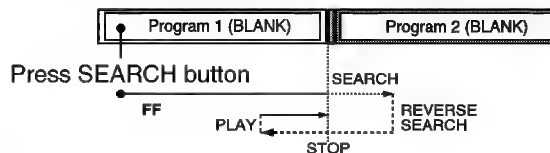


**Fig.3** If search exceeds few seconds in BLANK area.  
Press **SEARCH** button



### Upon locating end point...

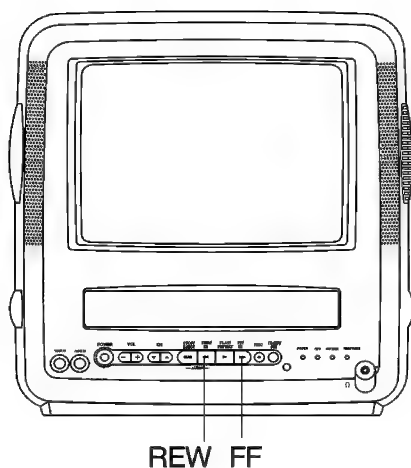
The unit searches slightly past end point, reverse searches, and plays the last few seconds of the program, then stops.



### Notes

- If Program End Search is started very close to an index mark, that mark may be skipped over.
- To cancel, press **PLAY** or **STOP**.

Advanced Operation



REW FF



# Tape Operation (continued)

## Auto Operation Functions

### ■ Auto Shut Off

No broadcast signal in TV, blank tape is Played for 5 minutes

→ Power turns off

- This feature is canceled if any button is pressed during above mode.

### ■ Auto Playback

Insert a tape in Power off mode

→ Power turns on

- Playback begins if tape has no record tab.
- This feature cannot be activated when the POWER button on the unit is turned OFF (POWER indicator is not lit.)

### ■ Auto Rewind

Tape reaches its end

→ Rewind, → Stop

### ■ Playback Auto Eject (Repeat Play is "OFF")

Tape with no record tab reaches its end

→ Rewind, → Stop, → Eject

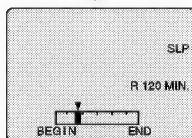
## Tape Position Display

To find out present tape position and amount of tape remaining.

**Tape position cannot be detected for C-Cassettes, tapes under 30 minutes, and some other tapes.**

### 1 Press TAPE POSITION to detect current tape position.

DETECTING TAPE POSITION

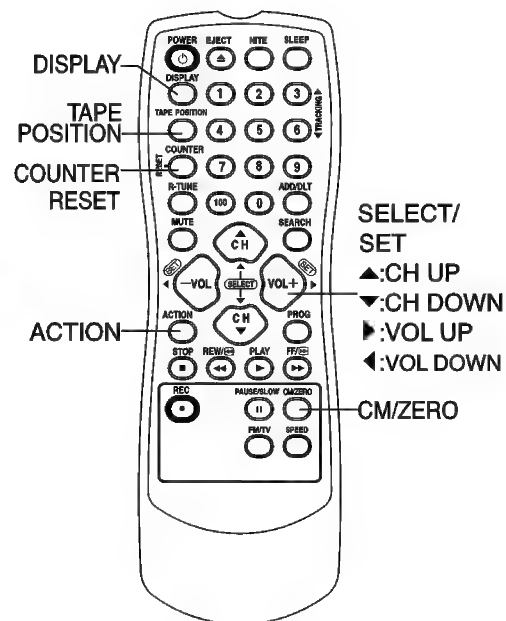


- "DETECTING TAPE POSITION" is displayed only when a cassette is first inserted and it takes several seconds for correct tape position to appear.
- The present tape position indication and amount of tape remaining (according to tape speed) is displayed.
- Tape remaining time display may not be precise.

### 2 Press TAPE POSITION (or wait 5 seconds) to return to normal screen.

#### Note

- This function cannot display exact amount of tape remaining for tapes 30 minutes or less, or for tapes over 120 minutes in length.

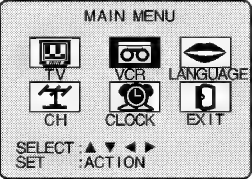


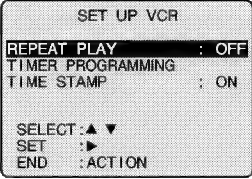
Model PV-C921/PV-C931W remote is shown here.

## Repeat Play

Set to see a recording over and over.

- 1 Press **ACTION** to display MAIN MENU.

- 2  1) Press **▲▼◀▶** to select "VCR."  
2) Press **ACTION** to display SET UP VCR screen.

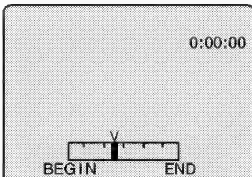
- 3  1) Press **▲▼** to select "REPEAT PLAY."  
2) Press **▶** to set REPEAT PLAY "ON" or "OFF."

- 4 Press **ACTION** twice to end setup.

## Zero Search

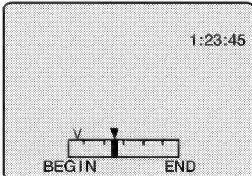
To quickly return to a specific tape counter location.

- 1 Press **DISPLAY** during playback to display the Counter.

- 2  Press **COUNTER RESET** at the desired position to reset to "0:00:00."

- 3 Continue playback, rewind, or fast forward.

- 4 Press **STOP**.

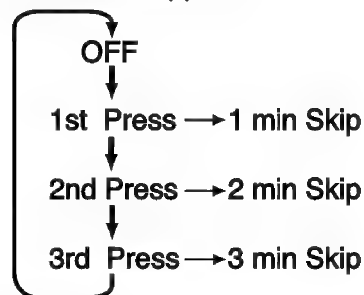
- 5  Press **CM/ZERO** in stop mode to start ZERO SEARCH.

- ▼ : Present position mark
- V : Zero position mark
- Unit goes into FF or REW mode and stops at the last point the Counter was set to 0:00:00.

## Commercial Skip

By pressing the CM/ZERO button in Playback mode you can skip over 1 to 3 minutes of recorded tape in just a few seconds.

- 1 Press **CM/ZERO** repeatedly to select skip time in Play mode.
  - No indication appears.



### Repeat Play Notes

- Playback repeats when tape end is reached or unrecorded portion over 30 seconds is detected.
- During playback, you may also press **PLAY/REPEAT** repeatedly on the unit to select REPEAT "ON" or "OFF."

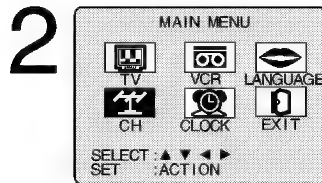
### Zero Search Note

- If a blank portion exists on the tape, and depending on the position of the ▼ mark, the V mark display may be out of position.
- When Zero Search is done in DC mode, the counter position and the counter and V mark displays may be out of position.

# Special VCR Features

## Preset Caption

- 1 Press ACTION**  
to display MAIN MENU.



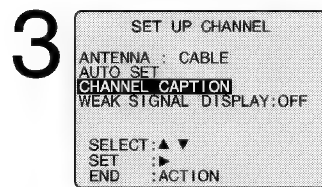
- 1) Press **▲▼◀▶** to select "CH."  
2) Press **ACTION** to display SET UP CHANNEL screen.

## Channel Caption is ...

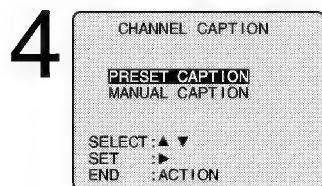
Station names, e.g. ABC, TNN, etc. are set so they will appear when a channel is selected. Choose 24 preset names (Preset Caption), or make up to 10 names of your own (Manual Caption.)

## ☒ Ready Check List

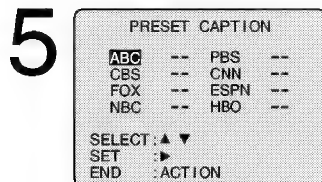
- ☐ You need a list of stations and the channel numbers you receive them on.



- 1) Press **▲▼** to select CHANNEL CAPTION.  
2) Press **▶** to display screen.

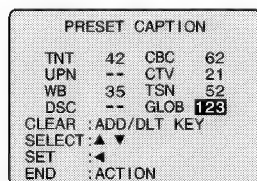


- 1) Press **▲▼** to select PRESET CAPTION.  
2) Press **▶** to display screen.  
• To create your own captions, go to "Manual Caption" on page 31.



- 1) Press **▲▼** to select a station.  
2) Press **▶** to move cursor to the right.  
3) Press **▲▼** to select channel number.  
4) Press **◀** to set preset captions.

- Repeat step 5 until the Caption List is complete.



## To Make Corrections

Press **▲▼**, then **▶** to select channel number.  
Press **▲▼** to change, or ADD/DLT to delete.

- 6 Press ACTION** four times  
to end setup.

**30**

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com)

## Manual Caption

### 1 Do "Preset Caption" steps 1~3 (page 30).

## 2

CHANNEL CAPTION	
PRESET CAPTION	
MANUAL CAPTION	
SELECT:	▲ ▼
SET	: ►
END	: ACTION

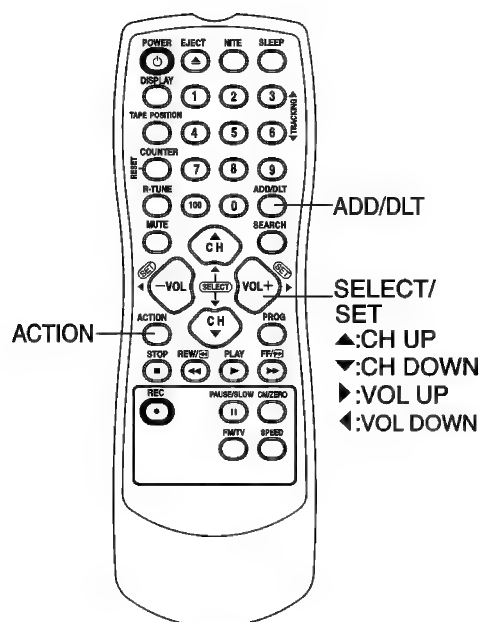
- 1) Press ▲▼ to select MANUAL CAPTION.
- 2) Press ► to display screen.

## 3

MANUAL CAPTION	
CH NUMBER	CAPTION
02	----
SELECT:	▲ ▼
SET	: ►
END	: ACTION

- 1) Press ▲▼ to select CH NUMBER.
- 2) Press ► to move cursor to the right.

- Channels already set and channels deleted from Channel Memory are not displayed.
- You can set a total of ten channel captions with up to four characters each.



Model PV-C921/PV-C931W remote is shown here.

## 4

MANUAL CAPTION	
CH NUMBER	CAPTION
02	A---
CLEAR :	ADD/HLT
SELECT:	▲ ▼
SET	: ►
END	: ACTION

- 1) Press ▲▼ to select and ► to enter your caption.
- Characters change in the following order.

→ A—B—C—...—Z—BLANK— — —& ←  
→ 9—...—2—1—0—/—! ←

- Press ◀ repeatedly to move the cursor to "CH NUMBER." Repeat steps 3 and 4 as desired.

### To Make Corrections

Press ▲▼, then ► to select channel number.  
Press ▲▼ to change, or ADD/HLT to delete.

### 5 Press ACTION four times to end setup.

Advanced Operation

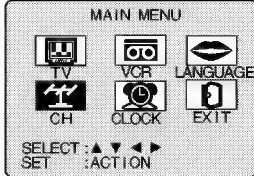
# Special VCR Features (continued)

## Weak Signal Display ON/OFF

When "ON" is selected, the picture is displayed even when a broadcast signal is weak or non-existent.

**1 Press ACTION**  
to display MAIN MENU.

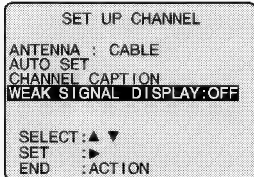
**2**



1) Press ▲▼◀▶ to select "CH."

2) Press ACTION to display SET UP CHANNEL screen.

**3**



1) Press ▲▼ to select WEAK SIGNAL DISPLAY.

2) Press ▶ to set "ON" or "OFF."

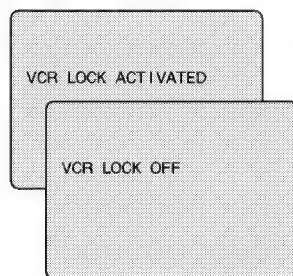
### Notes

- "ON" = Picture is displayed regardless of signal condition, and may not always be clearly visible.
- "OFF" = Screen turns solid blue when signal is absent or weak.
- If unit is connected to equipment which has blue back feature, selecting "ON" will have no effect on the other equipment.

**4 Press ACTION twice**  
to return to the normal screen.

## VCR Lock

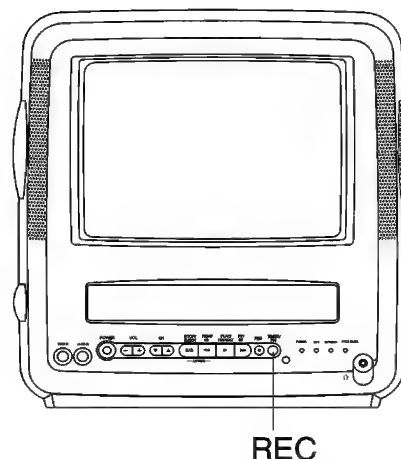
All operations are prohibited except Timer recording and tape eject. Useful for families with small children.



In stop mode, **hold down REC** on the unit without a cassette inserted for 7 seconds to turn "ON." Please ignore "NO CASSETTE" warning.

Repeat above with or without cassette to turn "OFF."

- VCR Lock is canceled automatically after about 24 hours if clock is set.
- This feature cannot be activated when POWER on the unit is turned OFF (POWER indicator is not lit.)



REC

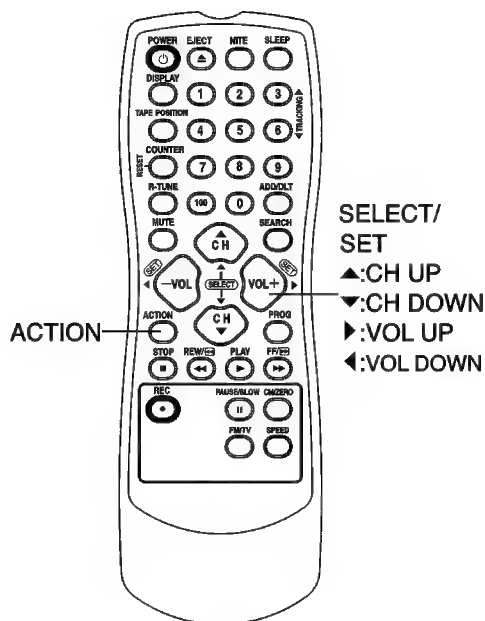
**32**

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com)



## Ready Check List

- ☐ The clock is set to correct time.  
☐ The record tab is in place.



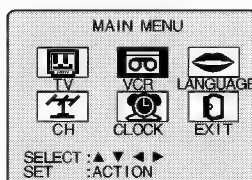
Model PV-C921/PV-C931W remote is shown here.

## Time Stamp Feature

This unit writes program data (see example below) for about the first 10 seconds of every recording. The information is then displayed about 10 seconds after playback begins.

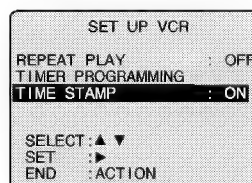
**1 Press ACTION**  
to display MAIN MENU.

2



- 1) Press **▲▼◀▶** to select "VCR."
- 2) Press **ACTION** to display SET UP VCR screen.

3



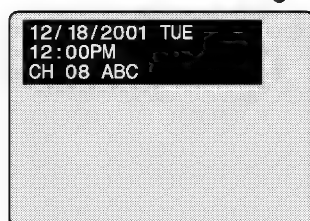
- 1) Press **▲▼** to select **TIME STAMP**.
- 2) Press **▶** to set "ON" or "OFF."

- When "OFF" is selected, the program data is written on the tape, but will not be displayed.

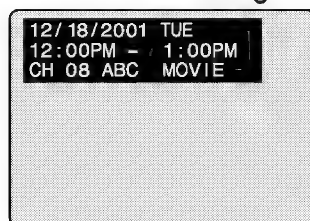
**4** Press **ACTION** twice to return to normal screen.

### <Time Stamp Example >

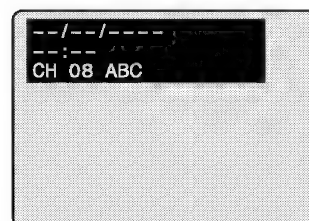
### Normal/ One Touch Recording



## Timer Recording



### When Clock is not set...



# V-Chip Control Feature

## V-Chip Control Feature is...

This unit has a built-in V-Chip Control which allows you to block unwanted TV usage based on US MOVIES and US TV PROGRAMS Ratings.

## Process of V-Chip Control Feature

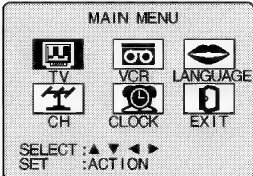
**Enter Code** ⇒ **Setup** ⇒ **Blocking**

### Enter Secret Code

A 4-digit code must be entered to view a blocked program or change rating settings.

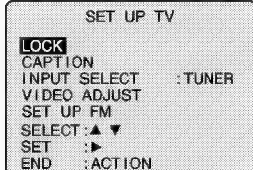
**1 Press ACTION**  
to display MAIN MENU.

**2**



1) Press ▲▼◀▶ to select "TV."  
2) Press ACTION to display SET UP TV screen.

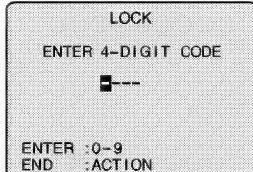
**3**



1) Press ▲▼ to select LOCK.  
2) Press ► to display screen.

<Model PV-C921/  
PV-C931W screen shown>

**4**

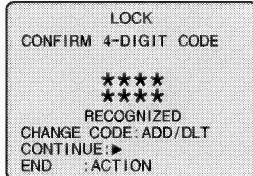


1) Press number keys to enter your secret code.  
2) Enter same code again for confirmation.

**To Make Corrections**  
Press ◀ repeatedly to move the cursor.  
Press number keys to make the correction.

- Step 2) not necessary when changing rating or secret code.
- Take care that you are not observed entering the secret code.

**5**



Press ► to display US Ratings menu (see page 35).  
Or  
Press ACTION three times to exit.

### Changing your secret code

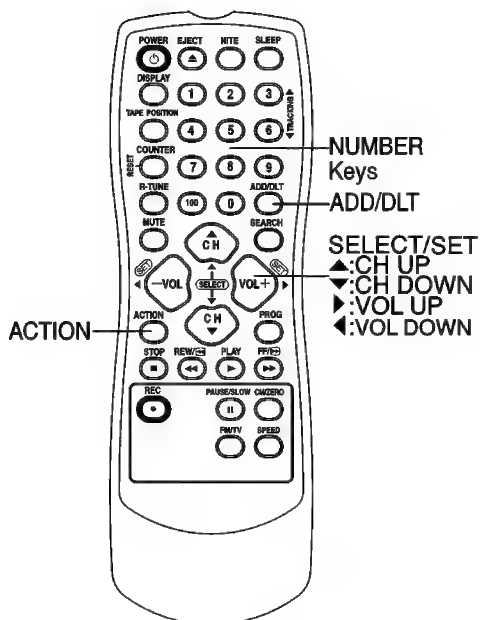
- You will need your current code. Do steps 1 ~ 4. In step 5, press ADD/DLT to clear current code. Repeat steps 4 and 5 to enter new code.

### Notes

- DO NOT forget your secret code.
- Once ratings are set, restricted tapes or programs cannot be accessed unless the secret code is entered.

## Process of V-Chip Control Feature

Enter Code ⇒ Setup ⇒ Blocking

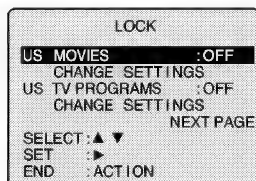


Model PV-C921/PV-C931W remote is shown here.

If LOCK menu is not displayed, do "Enter Secret Code" steps on page 34.

## Setup US MOVIES Ratings

1



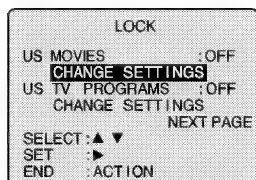
- 1) Press ▲▼ to select US MOVIES.
- 2) Press ► to set "ON" or "OFF."

- "ON" → V-Chip Control is activated.
- "OFF" → V-Chip Control is deactivated.

### Note

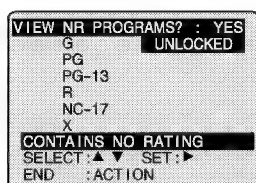
- "NEXT PAGE" displays CANADIAN V-Chip setting menu. Not necessary except when viewing Canadian tapes or broadcasts.

2



- 1) Press ▲▼ to select CHANGE SETTINGS.
- 2) Press ► to display screen.

3

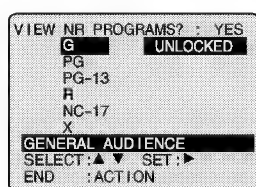


- 1) Press ▲▼ to select VIEW NR PROGRAMS?.
- 2) Press ► to set "YES" or "NO."

### NR (Not Rated) PROGRAMS

Some movies, such as old movies or foreign movies usually have no ratings.

4



- 1) Press ▲▼ to select and ► to set ratings to be blocked. (See ratings chart next page.)

5

Press ACTION to redisplay LOCK menu and continue with US TV PROGRAMS Ratings Setup (next page). Or, press ACTION four times to exit.

## US MOVIES RATINGS

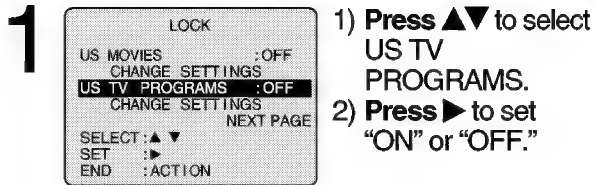
G	<b>GENERAL AUDIENCE:</b> All ages admitted.
PG	<b>PARENTAL GUIDANCE:</b> Some material may not be suitable for children.
PG-13	<b>PARENTS CAUTIONED:</b> Some material may be inappropriate for children under 13.
R	<b>RESTRICTED:</b> Children under 17 must be accompanied by a parent or adult.
NC-17	<b>OVER AGE 17 ONLY:</b> No one 17 and under admitted.
X	<b>ADULTS ONLY:</b>



# V-Chip Control Feature (continued)

If **LOCK** menu is not displayed, do "Enter Secret Code" steps on page 34.

## Setup US TV PROGRAMS Ratings

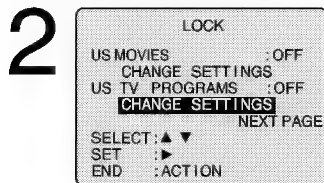


- 1) Press ▲▼ to select US TV PROGRAMS.
- 2) Press ► to set "ON" or "OFF."

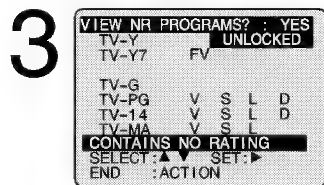
- "ON" → V-Chip Control is activated.
- "OFF" → V-Chip Control is deactivated.

### Note

- "NEXT PAGE" displays CANADIAN V-Chip setting menu. Not necessary except when viewing Canadian tapes or broadcasts.



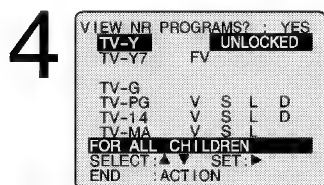
- 1) Press ▲▼ to select CHANGE SETTINGS.
- 2) Press ► to display screen.



- 1) Press ▲▼ to select VIEW NR PROGRAMS?.
- 2) Press ► to set "YES" or "NO."

### NR (Not Rated) PROGRAMS

Some TV shows, such as news, sports, weather, bulletins, emergency information usually have no ratings.



- 1) Press ▲▼ to select and ► to set ratings to be blocked. (See ratings charts at right.)

### Note

You may select from standard TV ratings (chart 1), or customize to a specific content rating (chart 2).

- Ratings highlighted in Green will be blocked. Ratings in white letters will not be blocked.

**5** Press **ACTION** four times to exit this mode.

## US TV PROGRAMS RATINGS: Chart 1

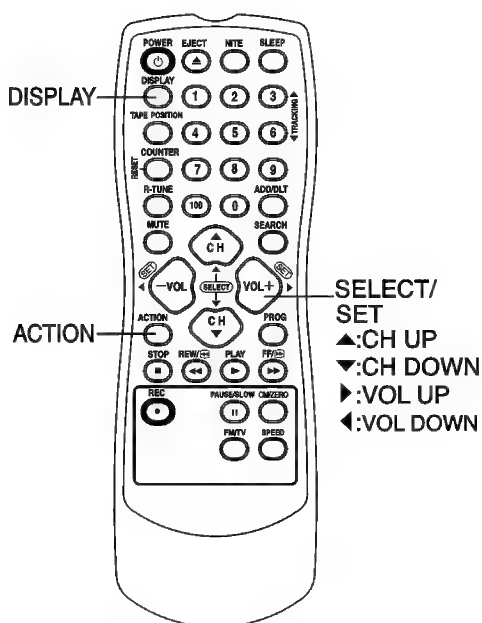
TV-Y	<b>FOR ALL CHILDREN:</b> Content specifically geared to young viewers ages 2-6.
TV-Y7	<b>FOR AGE 7 AND OLDER:</b> May contain mild physical or comedic violence which may frighten children under 7.
TV-G	<b>GENERAL AUDIENCE:</b> Contains little or no violence, strong language, or sexual dialogue or situations.
TV-PG	<b>PARENTAL GUIDANCE:</b> May contain infrequent coarse language, limited violence, some suggestive sexual dialogue and situations.
TV-14	<b>PARENTS CAUTIONED:</b> May contain sophisticated themes, sexual situations, strong language, and more intense violence.
TV-MA	<b>MATURE AUDIENCE:</b> May contain mature themes, profane language, graphic violence, and sexual situations.

## US TV PROGRAMS RATINGS: Chart 2

FV	Fantasy Violence
V	Violence
S	Sexual Situations
L	Adult Language
D	Sexually Suggestive Dialogue

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For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com)



Model PV-C921/PV-C931W remote is shown here.

## Process of V-Chip Control Feature

Enter Code ⇒ Setup ⇒ Blocking

## Blocking Message

<When V-Chip Control is activated>

ABC  
PROGRAM RATING EXCEEDED  
RATING: PG-13  
ACCESS CODE -----  
ENTER : 0-9

- If a program or movie exceeds the ratings you have set, a message will appear on a black background and sound is muted.

## To View a Blocked Program / Movie

**[Temporarily Deactivate V-Chip Control]**

Enter your secret code (ACCESS CODE) in the Blocking Message screen.

- V-Chip Control is reactivated when power is turned off or power failure occurs.

**[Deactivate V-Chip Control]**

Enter your secret code (steps 1-4 page 34).

Then, set US MOVIES and/or US TV PROGRAMS to "OFF" using ▲▼ and ► keys. (Ratings set on pages 35, 36 are retained and will be in effect when V-Chip Control is activated again.)

STOP 11:00AM ABC  
0:12:34 SP  
RATING: PG-13

- If DISPLAY is pressed, even when V-Chip control is deactivated, rating is displayed on-screen.

STOP 11:00AM ABC  
0:12:34 SP  
NO V-CHIP DATA

- If DISPLAY is pressed, when V-Chip has not been setup, "NO V-CHIP DATA" is displayed on-screen.

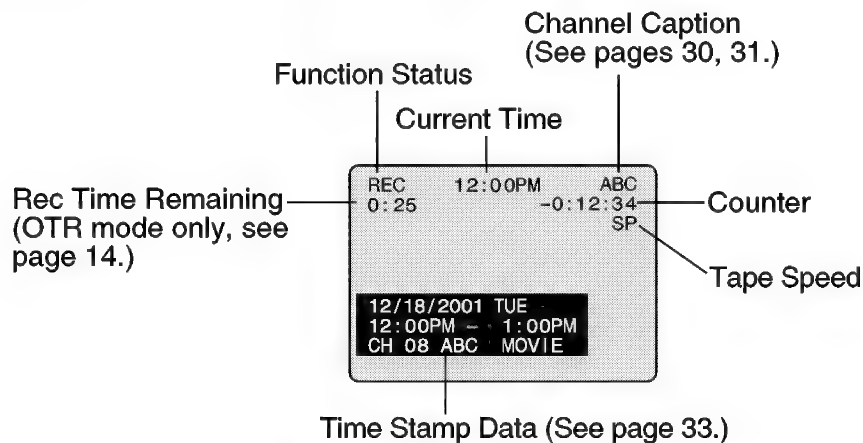
Advanced Operation

# On-Screen Display (OSD)

## VCR Status & Clock Display

**Press DISPLAY**

to display or remove the overlay.

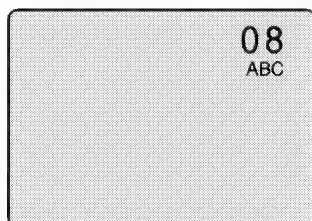


## Blue Screen Display

Whenever a blank section of a tape comes up in Play mode, or when the selected channel has no broadcast signal with the Weak Signal Display set to "OFF" (see page 32), the screen will turn solid blue.

## Channel & Function Display

When a function button is pressed (PLAY, FF, etc.) or you change channels, the unit mode or channel number will be displayed. (Some station names may also appear if Channel Caption is set. See pages 30, 31.)

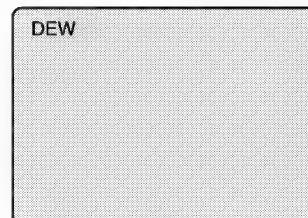


## Dew Detection System

To prevent damage to your tapes, this unit is equipped with a dew detection system. When moisture condensation is detected inside the unit, "DEW" will appear on-screen for a few seconds. If a tape is inserted, it will be ejected.

Also, VCR functions will be non-operational until dew condition passes.

Press DISPLAY to see if dew condition still exists. In order to avoid this condition, try not to move the unit directly from a cold place to a warm place. TV functions are not affected.



# Warning and Instruction Displays

These displays will alert you of a missed operation or provide further instructions.

OSD	Caution	Page
NO CH FOUND PLEASE CHECK ANTENNA CABLE CONNECTION THEN PUSH CH UP KEY AGAIN	• If no active channels are found for CHANNEL MEMORY...	5,8-11
PLEASE SET CLOCK BEFORE PROGRAMMING	• If you attempt to set or review a Timer Recording, or set the On-Timer and the Clock is not set...	8-13
CHECK CASSETTE RECORD TAB	• If you press REC, and a cassette is inserted with no record tab...	4, 14
TO CANCEL TIMER REC HOLD DOWN STOP KEY FOR APPROX 3 SEC	• If you press STOP during a Timer Recording...	25
NO CASSETTE PLEASE INSERT A CASSETTE	• If you press PLAY, FF, REW, or REC without a cassette inserted...	14
DEW	• If moisture condensation is detected inside the unit...	38
VIDEO HEADS MAY NEED CLEANING PLEASE INSERT HEAD CLEANING CASSETTE OR REFER TO MANUAL END: PLAY KEY	• If head cleaning becomes necessary while playing back a tape...	41
VCR LOCK ACTIVATED	• If you press a function button other than STOP/EJECT or POWER while the unit is in VCR Lock mode...	32

# Operation Differences Using AC or DC Power

This unit is equipped to be operated on either AC or DC power. However, there are some differences in unit operation depending on which power supply is used.

## Notes

- The unit will accept commands from the remote control only when POWER on the unit is turned ON (POWER indicator is lit.)
- When POWER on the unit is OFF (DC power source), it's the same as if the unit were unplugged. Therefore, all memory data, i.e. clock data, etc. is erased in approximately one minute.
- If there is a loss in battery voltage of more than 30 seconds, the unit automatically shuts off.

AC Power Supply is Used	DC Power Supply is Used
<ul style="list-style-type: none"> <li>• If POWER on the remote control is pressed OFF during rewind, the power will shut off but the rewind will continue (Memory Rewind.) If it is pressed during recording, the recording will continue.</li> </ul>	<ul style="list-style-type: none"> <li>• If POWER on the remote control is pressed OFF during rewind, the rewind is terminated and the unit shuts off. If it is pressed while recording, the recording is terminated and the unit shuts off.</li> </ul>
<ul style="list-style-type: none"> <li>• When STOP is pressed, the cylinder continues to rotate for 5 minutes.</li> </ul>	<ul style="list-style-type: none"> <li>• When STOP is pressed, the cylinder stops.</li> </ul>
<ul style="list-style-type: none"> <li>• If the AC cord is unplugged and then plugged back in, the unit will be in OFF condition.</li> </ul>	<ul style="list-style-type: none"> <li>• If POWER on the unit is pressed OFF, the unit will be in Stop mode when turned back on.</li> <li>• If the DC cord is unplugged, and then plugged back in; <u>within one minute</u>, Play and Rec mode will continue. All other functions will change to Stop mode. If unplugged for <u>over one minute</u>, the unit will be in STOP mode when plugged back in.</li> </ul>
<ul style="list-style-type: none"> <li>• If POWER on the unit is pressed OFF, OTR (One Touch Recording) is continued.</li> </ul>	<ul style="list-style-type: none"> <li>• If POWER on the unit is pressed OFF, OTR (One Touch Recording) will be canceled.</li> </ul>
<ul style="list-style-type: none"> <li>• If POWER on the unit is pressed OFF, Timer Recording will be performed.</li> </ul>	<ul style="list-style-type: none"> <li>• If POWER on the unit is pressed OFF, while a Timer Recording is in progress, the Timer Recording will be canceled.</li> </ul>
<ul style="list-style-type: none"> <li>• If POWER on the unit is pressed OFF during rewind, the power will shut off but the rewind will continue (Memory Rewind.)</li> </ul>	<ul style="list-style-type: none"> <li>• If POWER on the unit is pressed OFF during rewind, the rewind is terminated and the unit shuts off.</li> </ul>

## WARNING:

- There may be an excessive drain on the battery if the unit is used along with such power consuming things as fog lamps, air conditioner, power windows, etc.
- Never watch or operate the unit while driving a vehicle.
- Avoid leaving the unit in places of extreme heat, such as inside a hot vehicle, or in direct sunlight as this may damage the unit.

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For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com)

# Unit Information

## Head Cleaning

Playing older or damaged tapes may eventually cause video heads to become clogged.

### Head Clog Sensor

During playback this screen appears if clogging is detected. To remove screen, press **PLAY** on the remote or unit.

- Use "dry" type head cleaning cassette only. (Part No. NV-TCL30PT is recommended.)
- Follow cleaning tape directions carefully. Excessive use of head cleaning tape can shorten the video head life.
- If head clog symptoms persist, contact your nearest Factory Service Center or authorized Service Center. (See page 43.)

VIDEO HEADS MAY  
NEED CLEANING.  
PLEASE INSERT HEAD  
CLEANING CASSETTE  
OR REFER TO MANUAL

END:PLAY KEY

## Build-in Head Cleaner <For Model PV-C911 only>

A clean video head helps produce a clear picture. So, we have equipped your unit with a built-in, non chemical head cleaning system that helps prevent clogging of the video heads. Cleaning is performed each time you load or unload a video cassette.

**Note:** This feature is preventative only. If your video heads are seriously clogged, consider the use of a chemical nonabrasive head cleaning kit or take your unit to a Service Center.

## DST (Daylight Saving Time)

Unit auto adjusts clock for DST (Daylight Saving Time.)

### ■ Spring (First Sunday in April)

DST : ON → Sets clock ahead one hour.

### ■ Autumn (Last Sunday in October)

DST : ON → Turns clock back one hour.

- If your area does not observe Daylight Saving Time, select DST:OFF.
- Keep these time changes in mind when programming the unit for timer recordings.

## Record/Playback Time

Only use tapes with the **VHS** mark in this unit.

Tape Speed Setting	Type of Video Cassette		
	T60	T120	T160
SP (Standard Play)	1 Hour	2 Hours	2 Hours 40 Minutes
LP (Long Play)	2 Hours	4 Hours	5 Hours 20 Minutes
SLP (Super Long Play)	3 Hours	6 Hours	8 Hours

## Specifications

### Display

Picture Tube: 9 inch measured diagonal 90° deflection Picture Tube

### VCR

Video Recording System: 2 rotary heads helical scanning system

Audio Track: 1 track

### Tuner

Broadcast Channels: VHF 2 ~ 13, UHF 14 ~ 69  
CABLE Channels: Midband A through I (14 ~ 22)  
Superband J through W (23 ~ 36)  
Hyperband AA ~ EEE (37 ~ 64)  
Lowband A-5 ~ A-1 (95 ~ 99)  
Special CABLE channel 5A(01)  
Ultraband 65 ~ 94, 100 ~ 125

### FM Radio

Band range: 87.5 ~ 108.1 MHz  
(PV-C921/PV-C931W)

### FM Transmitter

Band range: 93 ~ 97, 99 ~ 103 MHz  
(PV-C921/PV-C931W)

### General

Power Source: 120 V AC, 60 Hz (AC)  
12V/24V (DC)

Power Consumption: Power on  
Approx. 63 watts (AC)  
Approx. 59 watts (DC)

#### Power off

Approx. 3.5 watts (AC)  
Approx. 0.8 watts (DC 12V)  
Approx. 1.5 watts (DC 24V)

Television System: EIA Standard NTSC color

Speaker: 1 piece

Operating Temperature: 5 °C ~ 40 °C (41 °F ~ 104 °F)

Operating Humidity: 10 % ~ 75 %

Weight: 9.1 Kg (20.1 lbs.)

Dimensions: 302 (W) X 327 (H) X

335 (D) mm

11-7/8" (W) X 12-7/8" (H)

X 13-3/16" (D)

Note: Designs and specifications are subject to change without notice.

## Features for a Quality Picture

### Digital Auto Tracking

Continuously analyzes the signal and adjusts for optimum picture quality.

### Manual Tracking Control (to reduce picture noise)

Use during Playback and Slow Motion mode to reduce picture noise. Press the 3 or 6 number key on the remote control or CH ▲▼ on the unit until the picture clears up. To return to Auto Tracking, press POWER off, then on again a few seconds later.

# Before Requesting Service

Check the following points once again if you are having trouble with your unit.

Power	Correction
No power...	<ul style="list-style-type: none"> <li>• Completely insert Power Plug into an AC outlet or when using the DC Car battery cord, check to see if the fuse is blown.</li> <li>• Set POWER button to ON.</li> </ul>
Monitor	Correction
No picture or sound...	<ul style="list-style-type: none"> <li>• Make sure your antenna system (TV or CABLE), is correctly set. (P. 8-11)</li> <li>• Completely insert Power Plug into an AC outlet. (Or use the DC Car Battery cord.)</li> </ul>
Poor picture with normal sound...	<ul style="list-style-type: none"> <li>• Set POWER button to ON.</li> <li>• Adjust BRIGHTNESS, SHARPNESS, and PICTURE controls in the SET UP TV menu. (P. 17)</li> </ul>
Poor sound with normal picture...	<ul style="list-style-type: none"> <li>• Adjust VOLUME control. (P. 16)</li> </ul>
Poor TV reception...	<ul style="list-style-type: none"> <li>• Adjust SHARPNESS and PICTURE controls in the SET UP TV menu. (P. 17)</li> </ul>
No color or poor color...	<ul style="list-style-type: none"> <li>• Adjust TINT and COLOR controls in the SET UP TV menu. (P. 17)</li> </ul>
Ghost (multiple) images...	<ul style="list-style-type: none"> <li>• Install a directional antenna.</li> </ul>
TV programs cannot be watched...	<ul style="list-style-type: none"> <li>• Make sure the selected channel is in unit's memory. (P. 12, 13)</li> </ul>
Channel cannot be selected...	<ul style="list-style-type: none"> <li>• Only the channel being recorded can be viewed on this unit.</li> </ul>
VCR	Correction
TV program cannot be recorded...	<ul style="list-style-type: none"> <li>• Make sure your antenna system (TV or CABLE), is correctly set. (P. 8-11)</li> <li>• Make sure cassette record tab is intact. (P. 4)</li> <li>• Check that clock is set to current time and date.</li> <li>• Make sure DSS/CABLE box (if used) is left on and tuned to channel to be recorded.</li> <li>• Set recording Start/Stop times correctly. (P. 24-25)</li> <li>• Timer recording may not be performed or continued if a power interruption of more than 1 minute occurs before or during a Timer recording even after power is restored.</li> </ul>
Timer recording cannot be performed...	<ul style="list-style-type: none"> <li>• Adjust TRACKING control in either direction. (P. 41)</li> <li>• Try Head Cleaning. (P. 41)</li> <li>• Make sure VCR LOCK is set to off. (P. 32)</li> <li>• Make sure unit is not in a Timer Record operation.</li> </ul>
No playback picture, or the playback picture is noisy or contains streaks... VCR cannot be controlled...	
Remote Control	Correction
Unit cannot be controlled...	<ul style="list-style-type: none"> <li>• Aim remote at remote sensor on unit (P. 7) so that signal is unobstructed.</li> <li>• Inspect the remote batteries. (P. 4)</li> <li>• Make sure VCR LOCK is set to off. (P. 32)</li> <li>• Exposing unit remote sensor to direct fluorescent or outdoor light may cause signal interference.</li> <li>• Check remote batteries.</li> </ul>
ACTION, PROG and FM/TV buttons cannot be selected...	
Miscellaneous	Correction
Video cassette cannot be inserted...	<ul style="list-style-type: none"> <li>• Insert the cassette window side up; record tab facing you.</li> </ul>
Video cassette cannot be removed...	<ul style="list-style-type: none"> <li>• Completely insert Power Plug into an AC outlet. (Or use the DC Car Battery cord.)</li> <li>• Try ejecting or inserting the tape again after turning POWER off, then back on.</li> <li>• Make sure cassette record tab is intact. (P. 4)</li> </ul>
Tape cannot be ejected or inserted...	
Video cassette ejects when a recording is started, or the power is turned off for timer recording...	<ul style="list-style-type: none"> <li>• To enable Quick Play mechanism, the VCR cylinder will rotate for about 3 minutes. This reduces response time from Stop to Play mode and from Play to Rewind Search mode.</li> </ul>
In Stop mode, the VCR motor (CYLINDER) continues to rotate...	<ul style="list-style-type: none"> <li>• Make sure VCR LOCK is set to off. (P. 32)</li> </ul>
VCR cannot be controlled...	

If you cannot resolve the problem, please call the Customer Satisfaction Center for product assistance at 201-348-9090.

To locate an authorized servicer call toll free 1-800-211-PANA(7262)  
or send e-mail to : [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com).



# Service Center List

For Product Information, Operating Assistance, Literature Request, Dealer Locations, and all Customer Service inquiries please contact:  
**1-800-211-PANA (7262), Monday-Friday 9 am-9 pm Saturday-Sunday 9 am-7 pm, EST.**  
 or send e-mail to : [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com)

Web Site: <http://www.panasonic.com>  
 You can purchase parts, accessories or locate your nearest servicenter by visiting our Web Site.

## Accessory Purchases:

**1-800-332-5368 (Customer Orders Only)**  
**Panasonic Services Company 20421 84th Avenue South, Kent, WA 98032**  
**(6 am to 5 pm Monday - Friday; 6 am to 10:30 am Saturday; PST)**  
**(Visa, MasterCard, Discover Card, American Express, Check)**

## Factory Servicenters Locations

<b>CALIFORNIA</b> 6550 Katella Avenue Cypress, CA 90630  800 Dubuque Avenue S. San Francisco, CA 94080  3878 Ruffin Road Suite A San Diego, CA 92123	<b>GEORGIA</b> 8655 Roswell Road Suite 100 Atlanta, GA 30350  <b>ILLINOIS</b> 9060 Golf Road Niles, IL 60714  1703 North Randall Road Elgin, IL 60123 (Pick-up / Drop-off only)	<b>MINNESOTA</b> 7850-12th Avenue South Airport Business Center Bloomington, MN 55425  <b>OHIO</b> 2236 Waycross Road Civic Center Plaza Forest Park, OH 45240	<b>WASHINGTON</b> 20425-84th Avenue South Kent, WA 98032
<b>COLORADO</b> 1640 South Abilene Street Suite D Aurora, CO 80012	<b>MARYLAND</b> 62 Mountain Road Glen Burnie, MD 21061	<b>PENNSYLVANIA</b> 2221 Cabot Blvd West Suite B Langhorne, PA 19047	<b>HAWAII</b> 99-859 Iwaiwa Street Aiea, Hawaii 96701 Phone (808) 488-1996 Fax (808) 486-4369
<b>FLORIDA</b> 3700 North 29th Avenue Suite 102 Hollywood, FL 33020	<b>MASSACHUSETTS</b> 60 Glacier Drive Suite G Westwood, MA 02090	<b>TEXAS</b> 13615 Welch Road Suite 101 Farmers Branch, TX 75244	

## Service in Puerto Rico

Matsushita Electric of Puerto Rico, Inc. Panasonic Sales Company/ Factory Servicenter:  
 Ave. 65 de Infanteria, Km. 9.5, San Gabriel Industrial Park, Carolina, Puerto Rico 00985  
 Phone (787)750-4300 Fax (787)768-2910

As of January 2000

For Your Information

# Limited Warranty

Panasonic Consumer Electronics Company,  
Division of Matsushita Electric Corporation  
of America, One Panasonic Way  
Secaucus, New Jersey 07094

Panasonic Sales Company,  
Division of Matsushita Electric of Puerto Rico, Inc.  
AVE. 65 de Infantería, Km. 9.5 San Gabriel  
Industrial Park Carolina, Puerto Rico 00985

## PANASONIC Video Products Limited Warranty

Panasonic Consumer Electronics Company or Panasonic Sales Company (collectively referred to as "the Warrantor") will repair this product with new or refurbished parts, free of charge, in the USA or Puerto Rico, in the event of a defect in materials or workmanship as follows (all time periods commence from the date of the original purchase):

PRODUCT	PARTS	LABOR	SERVICE	CONTACT NUMBER
CAMCORDER	ONE (1) YEAR, EXCEPT CCD IMAGE SENSOR CCD IMAGE SENSOR - SIX (6) MONTHS	NINETY (90) DAYS  NINETY (90) DAYS	Carry-In or Mail In	1-800-211-PANA(7262)
VCR	ONE (1) YEAR	NINETY (90) DAYS	Carry-In or Mail In	1-800-211-PANA(7262)
A/V MIXER	ONE (1) YEAR	NINETY (90) DAYS	Carry-In or Mail In	1-800-211-PANA(7262)
MONITOR- VCR Combination	ONE (1) YEAR, EXCEPT CRT CRT - TWO (2) YEARS	NINETY (90) DAYS CRT - NINETY (90) DAYS	Carry-In: 21" CRT and Smaller In-home or carry-in: 22" CRT and Larger	1-800-211-PANA(7262)

**Batteries** (if included) - New rechargeable batteries in exchange for defective rechargeable batteries for ten (10) days. Non-rechargeable batteries are not warranted.

**Tape** (if included) - New video cassette tape in exchange for a defective video cassette tape for five (5) days. In-home, carry-in or mail-in service, as applicable, in the USA can be obtained during the warranty period by contacting a Panasonic Services Company (PASC) Factory Servicenter listed in the Service Directory. Or call toll free contact number listed above, to locate an authorized PASC Servicenter. Carry-in or mail-in service in Puerto Rico can be obtained during the warranty period by calling the Panasonic Sales Company telephone number listed in the Servicenter Directory.

This warranty is extended only to the original purchaser. A purchase receipt or other proof of the date of the original purchase is required before warranty service is rendered.

This warranty only covers failures due to defects in materials and workmanship which occur during normal use and does not cover normal maintenance, including, but not limited to, video and audio head cleaning. The warranty does not cover damage which occurs in shipment, or failures which are caused by products not supplied by the warrantor, or failures which result from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, modification, faulty installation, set-up adjustments, improper antenna, inadequate signal pickup, maladjustment of consumer controls, improper operation, power line surge, improper voltage supply, lightning damage, commercial use such as hotel, office, restaurant, or other business or rental use of the product, or service by anyone other than a PASC Factory Servicenter or a PASC authorized Servicenter, or damage that is attributable to acts of God.

### LIMITS AND EXCLUSIONS

There are no express warranties except as listed above.

THE WARRANTOR SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGE TO RECORDING MEDIA) RESULTING FROM THE USE OF THIS PRODUCTS, OR ARISING OUT OF ANY BREACH OF THE WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

If a problem with this product develops during or after the warranty period, you may contact your dealer or Servicenter. If the problem is not handled to your satisfaction, then write to the Consumer Affairs Department at the Panasonic Consumer Electronics Company address above.

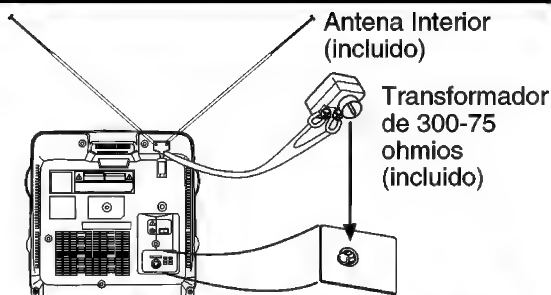
SERVICE CALLS WHICH DO NOT INVOLVE DEFECTIVE MATERIALS OR WORKMANSHIP AS DETERMINED BY THE WARRANTOR, IN ITS SOLE DISCRETION, ARE NOT COVERED. COSTS OF SUCH SERVICE CALLS ARE THE RESPONSIBILITY OF THE PURCHASER.

warvid 8/8/2000

# Spanish Quick Use Guide/Guía para rápida consulta

## Conexión de la Antena Interior

Inserte la antena varilla (suministrada) en el receptáculo de la parte trasera de la combinación de VCR/TV. Luego, conecte los dos alambres al transformador de 300 ohmios-75 ohmios (suministrado.) Entonces, conecte el transformador ala parte trasera de la combinación de VCR/TV como se muestra. Ahora, despliegue la antena y ajuste su longitud, dirección y ángulo para la más clara imagen.

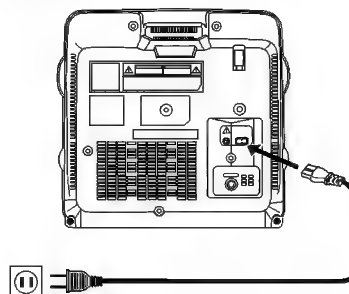


## Conexión a la fuente de alimentación

Ud. podrá llevar su combinación de VCR/TV a donde ud. va con dos diferentes formas de alimentación. Ud. podrá conectar su cable de C.A. (corriente alternada) incorporado a cualquier fuente de CA. Cuando está viajando, conecte su cable para batería de coche al enchufe de su encendedor de cigarrillo. para su seguridad de uso y para evitar daños al aparato, por favor siga las instrucciones y conexiones con cuidado.

### ■ Conexión del cable de CA (incorporado)

1. Conecte el cable de CA incorporado al enchufe de entrada CA en la parte trasera del aparato como está demostrado.
2. Conecte el cable de CA al enchufe de CA su pared.

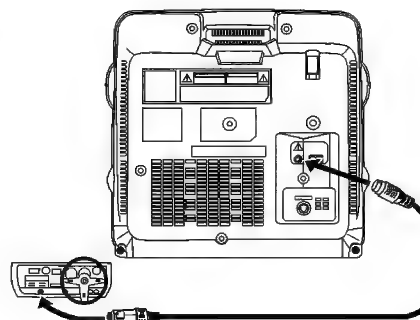


### ■ Conexión del cable para la batería de coche (incorporado)

1. Conecte el cable para batería de coche al enchufe de entrada CC en la parte trasera del aparato como está demostrado.
2. Arranque su vehículo.
  - No conecte su cable al enchufe del encendedor de cigarrillo antes de arrancar su vehículo.
3. Desconecte el encendedor de cigarrillo y conecte el enchufe de su cable para batería.

#### NOTAS IMPORTANTES:

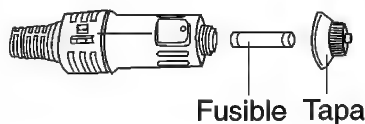
- Este cable sólo se puede usar en vehículos con batería de 12V o 24V (toma a tierra negativo.) Verifique en su manual de instrucciones de su vehículo.
- Use solamente el cable para batería de coche incorporado con su combinación de VCR/TV.
- Para evitar la disminución del voltage, no extienda el cable para batería de coche desde usando otro cable de extensión.
- Cuando no está usando el aparato, desconecte el cable para batería de coche desde el enchufe del encendedor para cigarrillo para evitar la descarga de la batería de su automovil.



### ■ Cambio del fusible de cable para

Si su fusible de seguridad se ha cortado, cambie como sigue al siguiente.

1. Destornille la tapa.
2. Cambie su fusible con otro fusible de 125V 10A.
  - Use sólo fusibles con las especificaciones correctas.
3. Reponga la tapa.



Guía para rápida consulta

# Spanish Quick Use Guide/Guía para rápida consulta

## Como realizar la Configuración Inicial

**1** Presione **POWER** para encender el videograbador combinado.

**2**

SELECT LANGUAGE  
PUSH CH ▲ : English  
OPRIMIR CH ▼ : Español  
APP. VOL + : Français

Quando encienda el VCR por primera vez, aparecerá la pantalla **SELECT LANGUAGE**.

- Si ajusta el idioma incorrecto, realice los pasos de la página 9 "Reajuste de todas las Funciones de Memoria de la unidad".
- Active la caja de cables y ajústela al canal PBS en su huso horario. Si usted utiliza receptor DSS, este debe estar apagado.

**3**

FIJACION AUTO. (CA/RELOJ)  
CONECTE EL CABLE DE LA ANTENA Y SI ESTA USANDO UNA CAJA DE TV POR CABLE SINTONICE AL CANAL PBS DE SU LOCAL LUEGO...  
POR FAVOR OPRIMIR CH UP

Presione **CH ▲** para seleccionar Inglés (English).

Presione **CH ▼** para seleccionar Español.

Presione **VOL +** para seleccionar Francés (Français). Aparecerá la pantalla **CHANNEL / CLOCK AUTO SET**.

**4**

6/7/2000 MIE 12:00PM  
HORA VERANIEGA: ACT  
CANAL FIJADO : CA 10  
FIJACION AUTOMATICA  
COMPLETO  
TERMINAR : OPRIMIR CH UP

Presione la tecla **CH ▲** para iniciar el funcionamiento de **CHANNEL / CLOCK AUTO SET**. El ajuste del **CHANNEL / CLOCK** se lleva a cabo automáticamente, si la configuración se ha terminado, se visualiza la pantalla siguiente.

Si aparece la pantalla "**FIJACION AUTOMATICA DEL RELOJ ES INCOMPLETO**", ajuste el reloj utilizando los procedimientos de "**AJUSTE MANUAL DEL RELOJ**" mostrados en la página 9.

FIJACION AUTOMATICA DEL RELOJ ES INCOMPLETO  
OPRIMIR ACTION PARA FIJAR EL RELOJ

## Ajuste Manual del Reloj

Si el ajuste automático del reloj no se ha completado, ajuste el reloj manualmente de la siguiente manera:

- 1) Presione la tecla **ACTION** en el control remoto para visualizar la pantalla del menú **RELOJ**.
- 2) Presione **▲▼** para seleccionar el mes y **►** para ajustar. De la misma forma, seleccione y ajuste la fecha, año, hora y DST (Hora de Verano).
- 3) Presione dos veces la tecla **ACTION** para poner el **RELOJ** en marcha y salir.

## Ajustar de nuevo el reloj

**1** Presione **ACTION** para exhiba el menú.

**2**

MENU PRINCIPAL  
TV VCR IDIOMA  
CANAL RELOJ 8  
ELEGIR: ▲ ▼ ► ◀  
FIJAR : ACTION

Presione **▲▼◀▶** para seleccionar "**RELOJ**". Presione **ACTION**.

**3**

FIJAR RELOJ  
FIJACION AUTOMATICA  
MANUAL  
AJUSTE ZONA HORA : 0  
ELEGIR: ▲ ▼ ► ◀  
FIJAR : ACTION  
TERMINAR: ACTION

Presione **▲▼** para seleccionar "**MANUAL**" y luego presione **►**.

**4**

FIJAR RELOJ  
VERANO: ACT  
ELEGIR MES  
ELEGIR: ▲ ▼ ► ◀  
FIJAR : ACTION  
TERMINAR: ACTION

Presione **▲▼** y **◀▶** para seleccionar y ajustar la hora y la fecha.

**5**

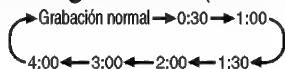
Presione **ACTION** dos veces para que el reloj comience a funcionar y salir desde este modo.

## Operaciones básicas para la reproducción

- 1 Inserte un casete.**
  - El videograbador combinado se enciende automáticamente.
- 2 Presione PLAY.**
  - La reproducción comienza automáticamente si el casete no tiene la lengüeta para prevención de grabación.
  - Para encontrar una escena en particular Búsqueda hacia adelante → Presione FF Búsqueda hacia atrás → Presione REW
  - Para ver una imagen fija (congelada) → Presione PAUSE/SLOW
  - Para ver en cámara lenta → Mantenga pulsado el botón PAUSE/SLOW en el modo de imagen fija
  - Para ver imágenes cuadro a cuadro → Presione PAUSE/SLOW en el modo de imagen fija
  - Para parar → Presione STOP
  - Para rebobinar la cinta → Presione REW
  - Para hacer avanzar la cinta rápidamente → Presione FF
  - Para expulsar la cinta → Presione EJECT en el control remoto o STOP/EJECT en el videograbador combinado

## Operaciones básicas para la grabación

- 1 Inserte un casete con la lengüeta para prevención de grabado.**
  - El videograbador combinado se enciende automáticamente.
- 2 Seleccione el canal.** Presione CH ▲▼ o las teclas numéricas correspondiente.
- 3 Seleccione la velocidad de grabación.** Presione SPEED.
  - SP = reproducción normal
  - LP = reproducción larga
  - SLP = reproducción super larga
  - La velocidad seleccionada debe aparecer en la pantalla.
- 4 Comience la grabación.** Presione REC.
  - Para editar partes no deseadas de una grabación, presione PAUSE/SLOW para hacer una pausa durante la grabación.
  - No podrá ver otro canal durante la grabación.
  - Para parar → Presione STOP.
  - El videograbador combinado deja de grabar a una hora prefijada. (Grabación de un toque) Presione REC repetidamente para ajustar la hora de grabación (30 min - 4 horas.)



## Grabación con temporizador

- 1 Exhiba FIJAR PROGRAMACION.** Presione PROG.
- 2 Exhiba TEMPORIZADOR.**
  - 1) Presione ▲▼ para seleccionar.
  - 2) Presione ► para exhibir.
  - Si ya existe un programa en la memoria, presione ▲▼ y ► para seleccionar un número de programa sin usar.
- 3 Ajuste la fecha de grabación.**
  - 1) Presione ▲▼ para seleccionar.
  - 2) Presione ► o ◀ para ajustar.

• 1 - 31 = Grabación única  
 • DIARIO = a la misma hora de lunes a viernes  
 • SEMANAL = a la misma hora una vez a la semana

Fecha de hoy - 7

Repita el paso 3 para ajustar: hora de comienzo, hora de parada, canal (o LINEA para una fuente exterior), categoría [N/O (no aplicable), DEPORTE, CINE, COMEDIA, MUSICA, DRAMA], velocidad (SP, LP, SLP)
- 4 Termine el programa.** Presione PROG (o ACTION.)
 

**Para introducir más programas.** presione ▲▼ y ► para seleccionar y ajustar el número de programa en blanco, y luego repita los pasos 3 y 4.
- 5 Salga de este modo.** Presione PROG dos veces (o ACTION.)
  - Si está usando un decodificador de TV cable, asegúrese que se encuentra en el canal deseado y que la alimentación queda conectada para grabar con temporizador.
  - El indicador PROG TIMER se enciende en el videograbador combinado.

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## 5 SERVICE NOTES (PLEASE READ)

### 5.1. SERVICE NOTES

#### 5.1.1. SIMPLIFIED FAULT FINDING DATA

Simplified Self-Diagnostic System facilitates finding the cause of the fault. A 4 digit for fault code and communication for I<sup>2</sup>C bus code will be displayed on TV screen.

The Simplified Fault finding data is stored in the Memory IC (IC6004). This data is cleared after it is displayed, and then the POWER button is pressed back on.

1. Turn off power by pressing the **POWER key on Remote Control** (Power LED ON). Then, press FF and REW buttons on unit together for over 3 seconds.

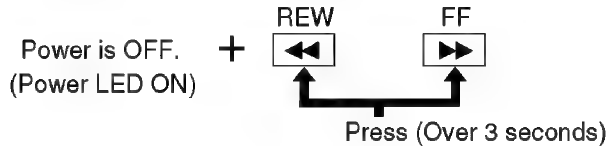


Fig. 1-1

2. TV power goes on and the unit goes into service mode. 4 digit for fault code and communication for I<sup>2</sup>C bus code will be displayed.

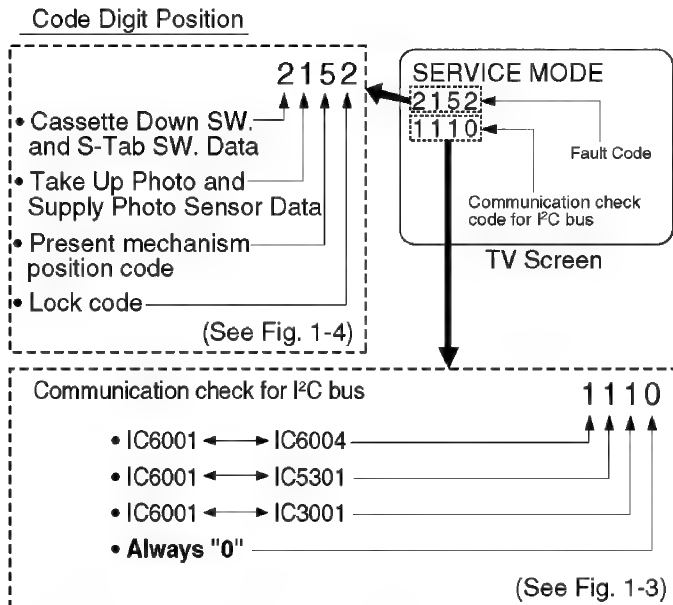


Fig. 1-2

#### (Communication check for I<sup>2</sup>C bus)

Explanation of Codes	Code No.
Communication check for I <sup>2</sup> C bus (IC6001 ↔ IC6004) ---- NG OK	0 1
Communication check for I <sup>2</sup> C bus (IC6001 ↔ IC5301) ---- NG OK	0 1
Communication check for I <sup>2</sup> C bus (IC6001 ↔ IC3001) ---- NG OK	0 1
Always "0"	0

Fig. 1-3

#### (Fault Code)

Explanation of Codes	Code No.			
<b>S-Tab SW. Data</b> • S-Tab SW. is off. • S-Tab SW. is on.	1 2			
<b>Take Up and Supply Photo Sensor Data</b> • No light detected at either sensor. • Take Up Photo Sensor detected at beginning of tape. • Supply Photo Sensor detected at end of tape. • Light detected at both sensors.	1 2 3 4			
<b>Present Mechanism Position Code</b>  Mechanism Position is indicated. (Refer to Fig. 1-5.)			1 2 3 4 5 6 7 8 9 A B C D	
<b>Lock Code (See Note)</b> • VCR is not in shut-off condition. • Reel lock. • Cylinder lock. • Exceeds loading/unloading time. (Mechanism Lock) • Exceeds Cassette loading/unloading time. (Cassette Lock) Tape Unloading (direction) Tape Loading (direction)			0 1 2 3  1 2	     4 4

Fig. 1-4

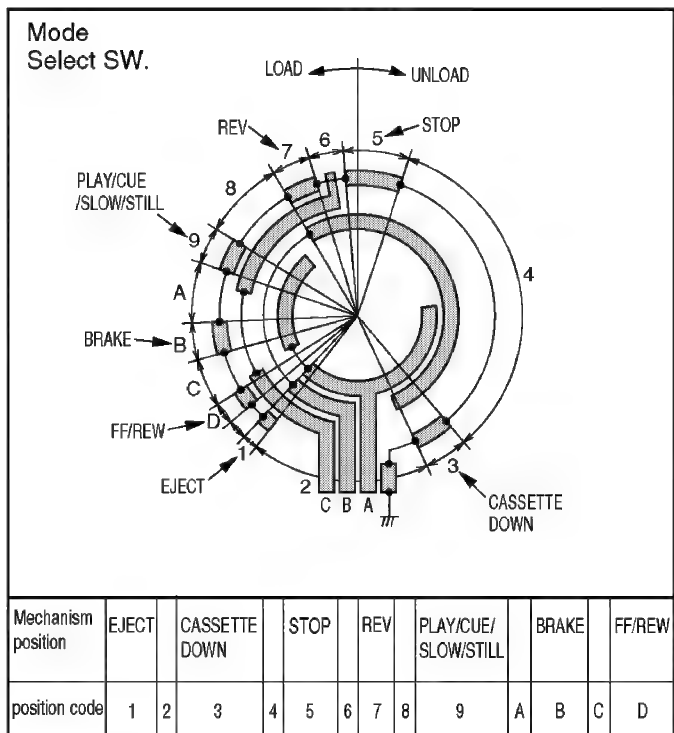
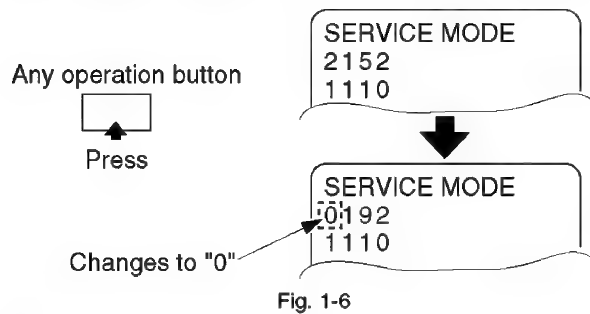


Fig. 1-5



- Press any operation button except for POWER on either the unit, or the remote to detect that a key has been pressed.

The 1st digit changes to "0" only when key is detected.



**Note:**

When 1 to 4 listed in Lock code occurs, the VCR stops and all VCR function buttons except for power become non-operational.

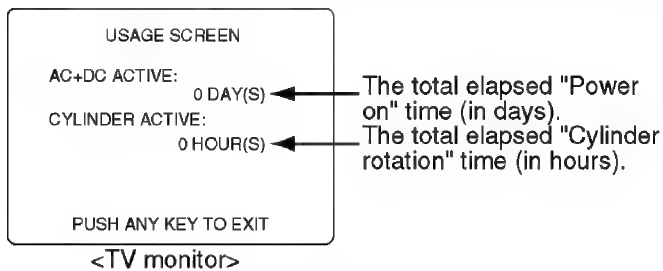
## 5.1.2. USAGE SCREEN MODE

Function displayed on the TV monitor:

- the total elapsed "Power on" time (in days)
- the total elapsed "Cylinder rotation" time (in hours)

- With power turned and no cassette, press STOP/EJECT button on unit and 7 key on remote together.

The USAGE SCREEN will be displayed on the TV Monitor.



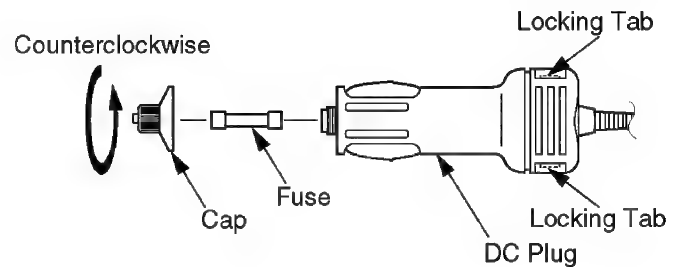
**Note:**

- After replacing the Cylinder Unit, press COUNTER RESET button on remote in this mode. Only Total elapsed "Cylinder rotation" time (in hours) will be cleared to 0.
- To release from Usage Screen Mode, press any operation button on unit or insert a cassette tape in this mode. The unit will return to normal operation mode.

## 5.1.3. HOW TO APPLY DC, AC POWER SUPPLY

### 1. DC Power Supply

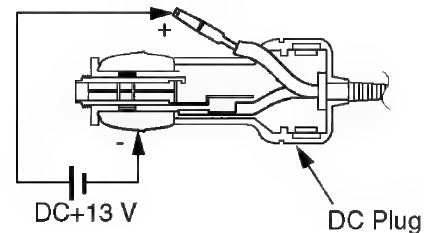
- Remove the Cap by turning it counterclockwise.
- Pull out the Fuse from DC Plug.
- Release the 2 Locking Tabs.



- Connect the DC cord to the input jack (P803) of unit, and then apply +13 V DC Power Supply to DC plug as shown.

**Note:**

Use DC Power Supply source with over 10 A capacity.



### 2. AC Power Supply

Connect the AC cord to the input jack (P801) of unit, and plug AC cord into an AC wall outlet.

## 5.1.4. SERVICE POSITION

### 5.1.4.1. Service Position

Service Position	Purpose
Service Position (1)	Power Supply C.B.A. check TV Main C.B.A. check
Service Position (2)	Mechanism check Mechanical adjustment Electrical adjustment Sub Power C.B.A.
Service Position (3)	Main C.B.A. check

#### CAUTION:

**HOT CIRCUIT** (Primary circuit) exists on the Power Supply C.B.A. and TV Main C.B.A. Use extreme care to prevent accidental shock when servicing.

### 5.1.4.2. Service Position (1)

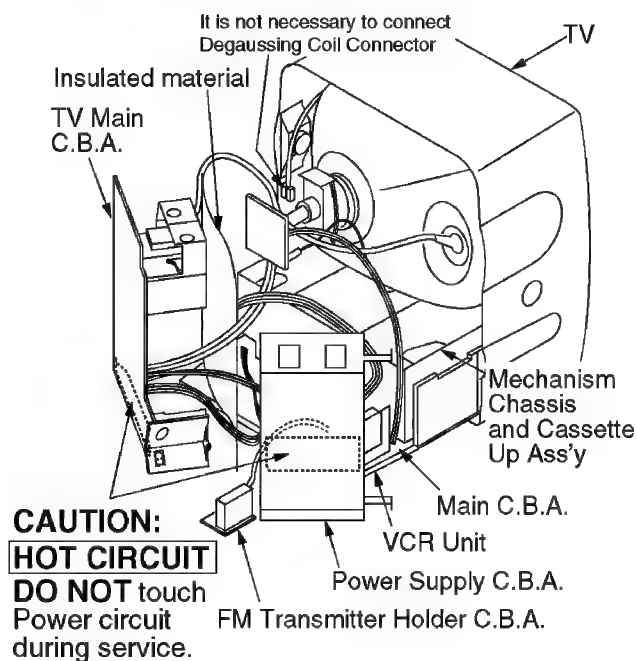


Fig. 2-1

### 5.1.4.3. Service Position (2)

#### CAUTION:

#### HOT CIRCUIT

DO NOT touch Power circuit during service.

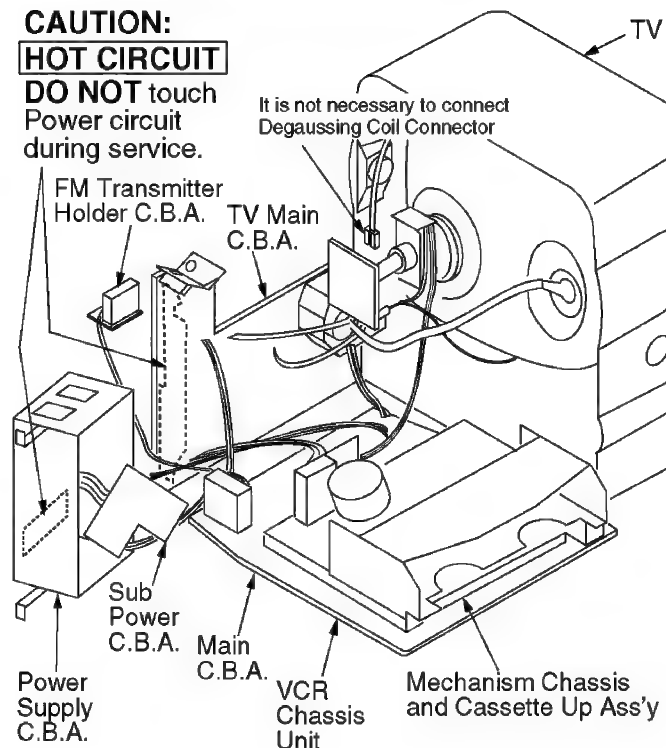


Fig. 2-2

### 5.1.4.4. Service Position (3)

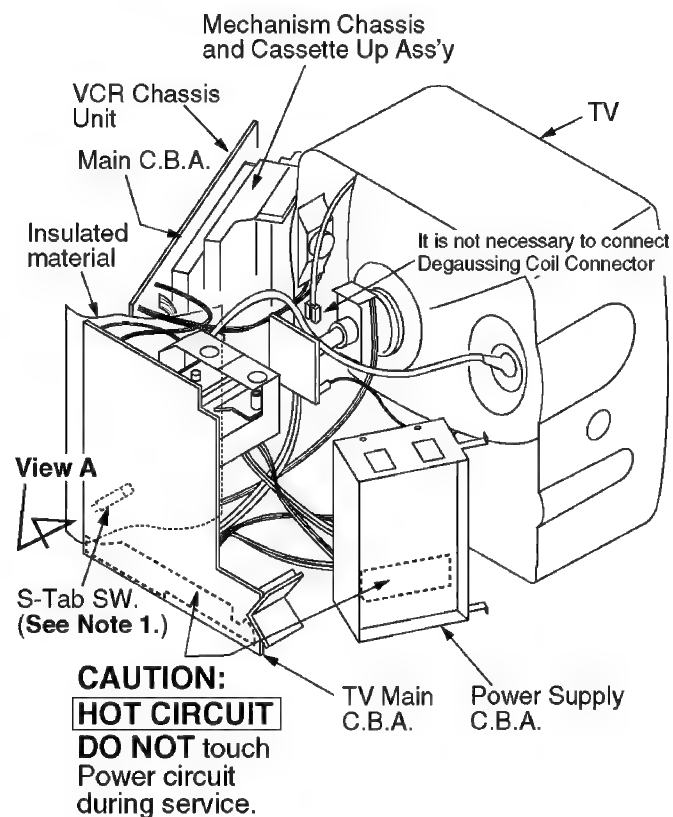
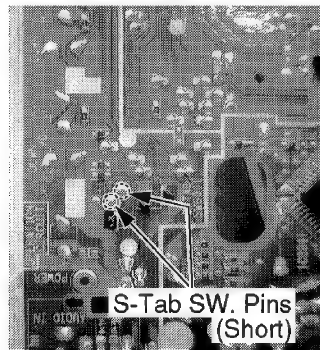


Fig. 2-3

**Note:**

1. It is possible that the S-Tab SW. may not work correctly in Service Position (2). (Recording can not be done). In this case, short the S-Tab SW. Pins on the foil side of the Main C.B.A. to turn this SW. on.



Main C.B.A. (foil side)  
**View A**

Alternative method:  
Cover the S-Tab SW. with masking tape.

Fig. 2-4

2. When disassembling/assembling, refer to "CABINET SECTION" in DISASSEMBLY/ASSEMBLY PROCEDURES.
3. Be sure to use only insulated material on portions which have a possibility of shorting.

### 5.1.5. HOT CIRCUIT

Primary circuit exists on the TV Main C.B.A. and Power Supply C.B.A.

This circuit is identified as "HOT" on the C.B.A. and in the Service Manual. Use extreme care to prevent accidental shock when servicing.

### 5.1.6. SERVICE MODE

In order to inhibit detection of the Supply & Takeup Photo Transistors, Reel Sensor, and Cylinder Lock, press and hold STOP/EJECT, PLAY/REPEAT, and CH down buttons on the unit together over 5 seconds in power on condition.

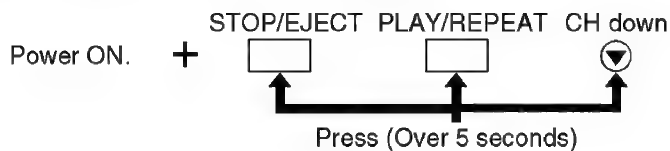


Fig. 3

The unit goes into service mode.

In this mode, Mechanism movement can be confirmed. When removing Cassette Up Ass'y, it can be confirmed without a cassette.

To release from this mode, press POWER button off or disconnect AC Plug.

### 5.1.7. DEFEATING THE AUTO TRACKING

To defeat the Auto Tracking Function, place the instrument in the STOP mode and place a jumper between TP6003 (Pin 5 of P6002) and TP6009 on the Main C.B.A. The tracking will be placed in the neutral position.

### 5.1.8. CAUTION FOR INSTALLATION OF VCR UNIT

#### CAUTION:

Opener Lever may be damaged when VCR Unit is installed, with Cassette Door-Lid and Opener Lever of Cassette Up Ass'y set incorrectly.

#### Install the VCR Unit as follows:

1. Swing the Cassette Door -Lid all the way open until the Cassette Door tab clears the Opener Lever.
2. Make sure that all guide tabs are aligned properly. Then, press the VCR Unit straight in.

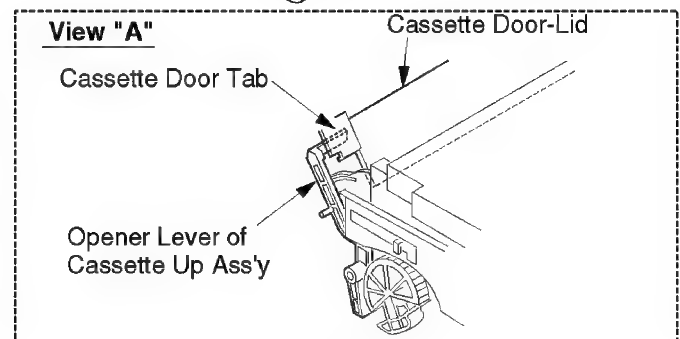
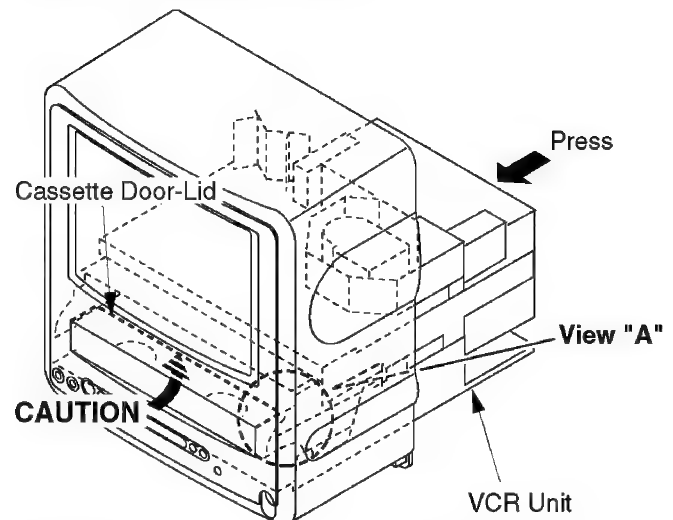


Fig. 4

### 5.1.9. HOW TO INITIALIZE MEMORY IC

After the Memory IC (IC6004) or MainC.B.A. is replaced, be sure to set the Default value to Memory IC as shown in "Memory IC Reference Table."

1. Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds with no cassette inserted. The adjustment overlay will appear to Enter EVR Adjustment mode.

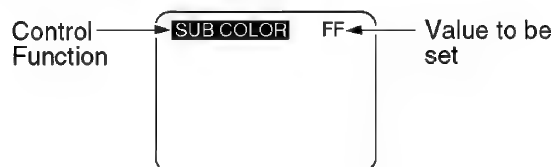


Fig. 5-1

2. Set the Default value of all Control functions using a remote control as shown in "Memory IC Reference Table."

**Note:**

For Selecting Control functions and setting Default value, refer to "HOW TO ENTER EVR ADJUSTMENT MODE" and "HOW TO ENTER EVR PG SHIFTER ADJUSTMENT MODE" in ELECTRICAL ADJUSTMENT procedures.

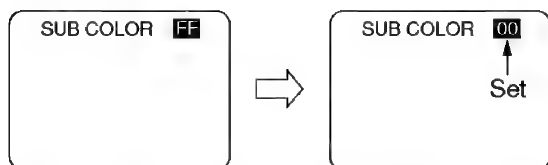


Fig. 5-2

3. Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds again or press the POWER button OFF to release EVR Adjustment Mode. The Default value will be written to Memory IC (IC6004).
4. Perform all EVR Adjustments. (Refer to "EVR ADJUSTMENT WITH THE REMOTE CONTROL" in ELECTRICAL ADJUSTMENT procedures.)

### Memory IC Reference Table

Control functions	Address	Range	Default
SUB COLOR	00	C0 - FF, 00 - 3F	00
SUB TINT	01	E0 - FF, 00 - 1F	00
SUB BRIGHT	02	C0 - FF, 00 - 3F	F0
CONTRAST	03	C1 - FF, 00	00
SUB SHARPNESS	04	E0 - FF, 00 - 1F	00
R CUT -OFF	05	00 - 7F	1E
G CUT -OFF	06	00 - FD	3C
B CUT -OFF	07	00 - FD	3C
G DRIVE	08	00 - 7F	40
B DRIVE	09	00 - 7F	40
SUB CONTRAST	0A	00 - 0F	06
H CENTER	0B	00 - 0F	08
SUB V	0C	00	00
V SIZE	0D	00 - 7F	40
V POSITION	0E	00 - 7F	40
ANR CTL	10	00 - EF	85
PICTURE CTL	11	00 - EF	82
VV COLOR	12	C0 - FF, 00 - 3F	00
VV TINT	13	E0 - FF, 00 - 1F	00
VV SHARPNESS	14	E0 - FF, 00 - 1F	F8
PG SHIFTER	15	01 - FD	80
FM ANT	18	00 - 01	00/01

**Note:**

1. Address is not displayed on the TV screen. Other Addresses except above are not used.
2. For models PV-C911, PV-C921, and PV-C931W, set the Default value of FM ANT to "00." For model PV-C921-K, set the Default value of FM ANT to "01."

## 5.1.10. METHOD FOR LOADING/UNLOADING OF MECHANISM

### 5.1.10.1. (Manual Method)

Turn the Loading Gear clockwise (for loading) or counterclockwise (for unloading) using needlenose pliers etc.

#### Note:

**Do not use this method if Mechanism is jammed or locked.**

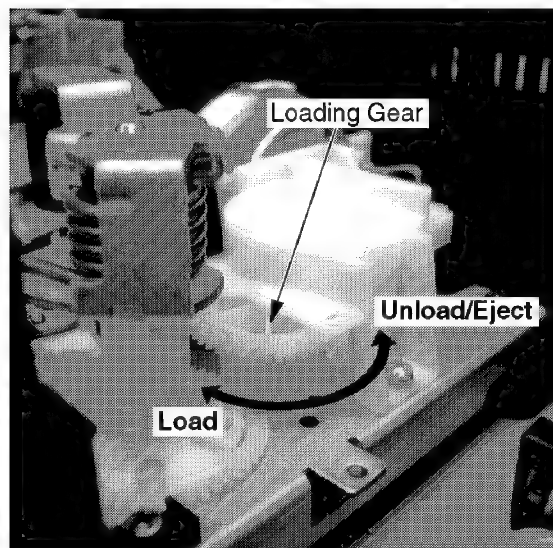


Fig. 6-1

### 5.1.10.2. (Electrical Method)

Apply +10.0 V DC Power Supply to the Loading Motor terminals.

#### Loading

DC + to Portion "a," DC - to Portion "b"

#### Unloading

DC - to Portion "a," DC + to Portion "b"

#### CAUTION:

Before applying DC Power Supply, be sure to cut the Motor Leads with a cutter, etc.

Otherwise, the Loading Motor Drive IC (IC2501) may be damaged.

When reconnecting the Motor Leads, solder at below 320 °C for less than 3 seconds.

**CAUTION:**  
Be sure to cut the Motor Leads with a cutter, etc.

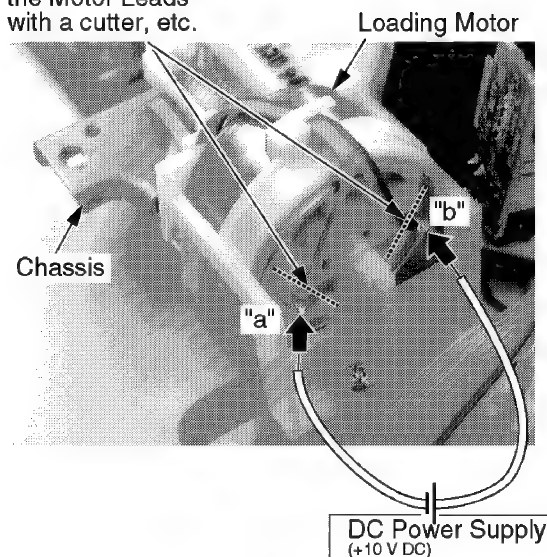


Fig. 6-2

**When loading without a cassette, push Portion "a" on the Holder Unit of Cassette Up Ass'y so that the Lever clear the First Tab and Second Tab.**

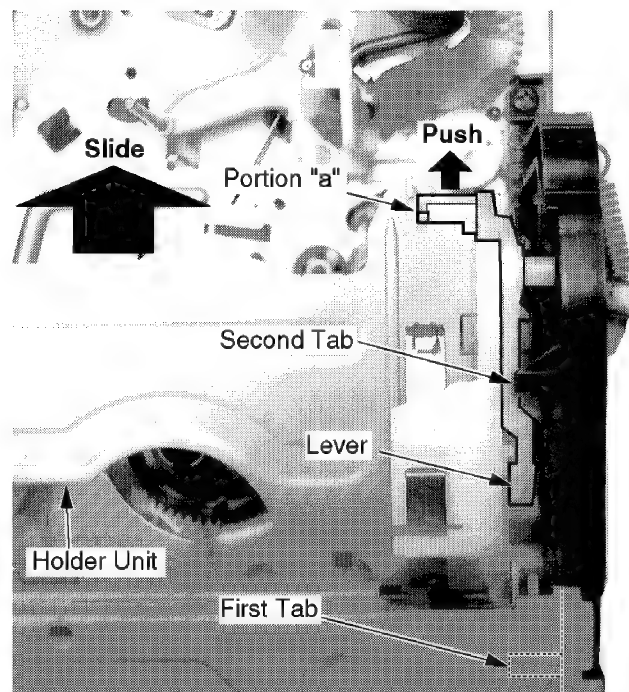


Fig. 6-3

## 5.1.11. HOW TO REMOVE A JAMMED TAPE

### CAUTION:

Wiper Arm Unit may be damaged or its spring may be out of place when the jammed tape is removed by force.

Remove a jammed tape as follows:

### 5.1.11.1. Manual Method

When a tape jam is encountered, check the tape loading condition and use the following procedure to remove a tape jam.

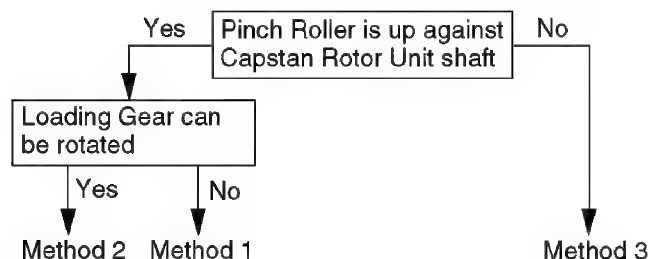
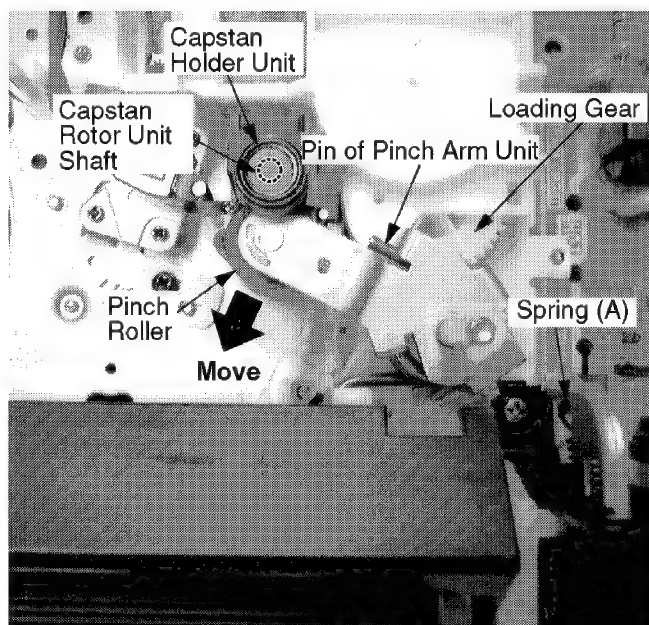


Fig. 7-1

#### 5.1.11.1.1. Method -1:

1. Move the Pinch Roller Unit out by unhooking the Pin of Pinch Arm Unit so that the Pinch Roller is separated from the Capstan Rotor Unit shaft.



Top View

Fig. 7-2

2. Remove the tape from the tape path.
3. Rewind the tape into the cassette by rotating the Center Clutch Unit counterclockwise.
4. Unhook Spring (A) of the Drive Rack Arm.
5. Remove Screw (A).
6. Lift the Cassette Up Ass'y. While pulling the Cassette Up Ass'y out far enough so that it clears the Drive Rack Arm, slide the Drive Rack Unit as indicated by the arrow to

- remove the cassette tape from the Cassette Up Ass'y.
7. Check the cause of mechanical trouble and repair.

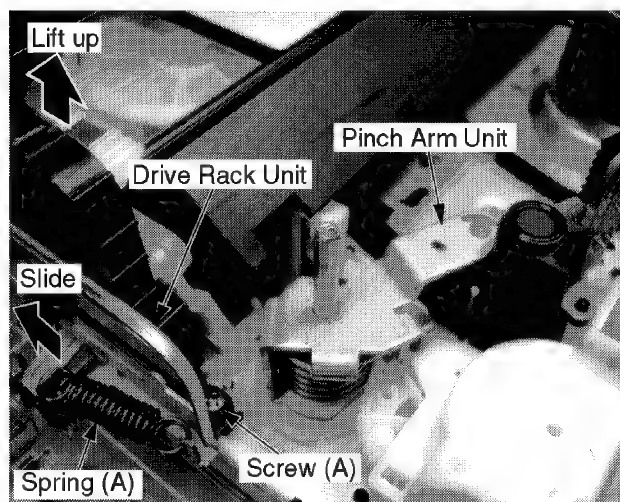


Fig. 7-3

#### 5.1.11.1.2. Method -2:

1. Rotate Loading Motor counterclockwise with needlenose pliers, etc. so that the Pinch Roller is separated from the shaft of the Capstan Rotor Unit.
2. Perform Step 2 through Step 7 of Method -1.

#### 5.1.11.1.3. Method -3:

1. Perform Step 2 through Step 7 of Method -1.

### Note:

After repairing mechanical trouble, make sure that all gear alignments are correct, especially the Wiper Arm Unit and Drive Rack Unit of Cassette Up Ass'y. (Refer to "EJECT Position Confirmation" in Disassembly/Assembly Procedures.)

### 5.1.11.2. Electrical Method

Electrical method can only be performed when the mechanism is moved by rotating the Loading Gear.

**CAUTION:**

1. Before applying DC Power Supply, be sure to cut the Motor Leads with a cutter, etc.

Otherwise, the Loading Motor Drive IC (IC2501) may be damaged.

When reconnecting the Motor Leads, solder at below 320 °C for less than 3 seconds.

2. If loading does not start in approx. 2 seconds after DC Power Supply is applied, DO NOT continue to apply DC Power Supply. Instead, perform "Manual Method."

1. Be sure to cut the Motor Leads with a cutter, etc.
2. Apply +10.0 V DC Power Supply to the Loading Motor terminals.
3. When the Loading Posts reach the fully unloaded position, remove the Power Supply.

**CAUTION:**

Be sure to cut the Motor Leads with a cutter, etc.

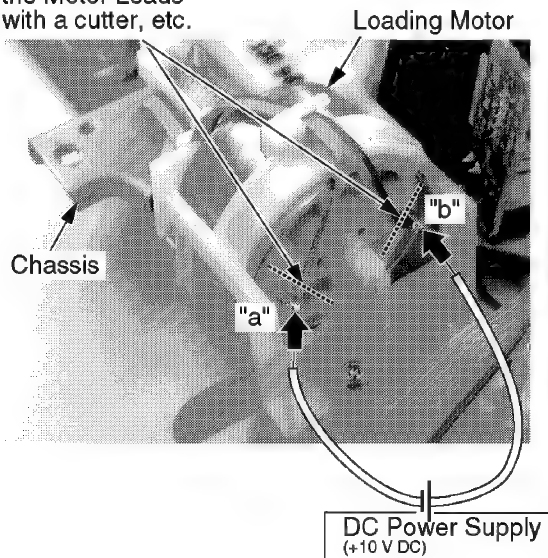


Fig. 8

4. Rewind the tape into the cassette by turning the Center Clutch Unit counterclockwise.
5. Eject the cassette by applying +10.0 V DC Power Supply again.



## 5.1.12. WIRE AND LEAD POSITION DIAGRAM

After servicing, make sure that all wires, leads, and clampers are placed in their original position. It is important for the best operation of the unit.

**Note:**

No lead wires or flat cables should touch any heating parts or the Heat Sink Plate.  
Use extreme care especially for followings.

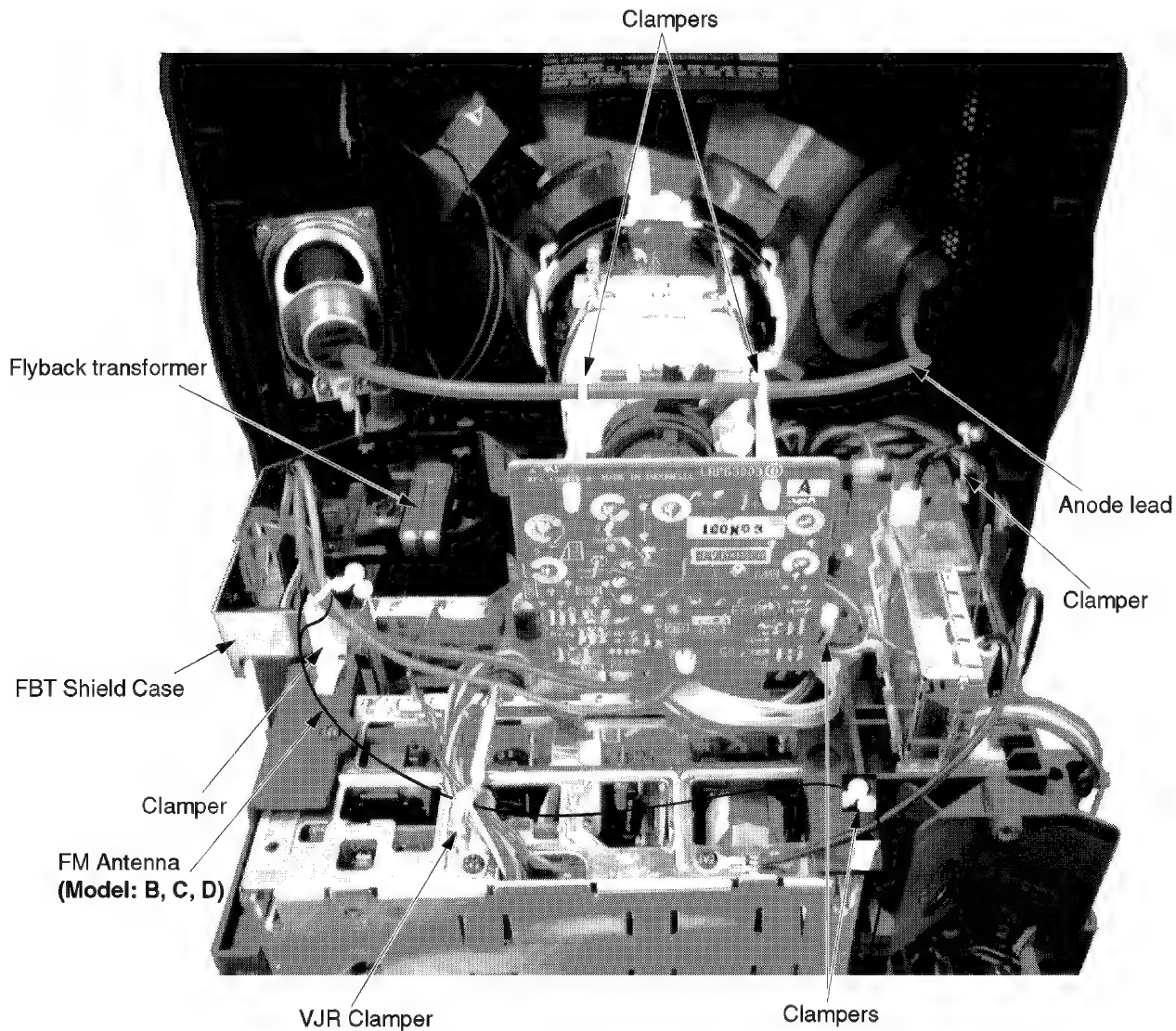


Fig. 9-1

### COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D

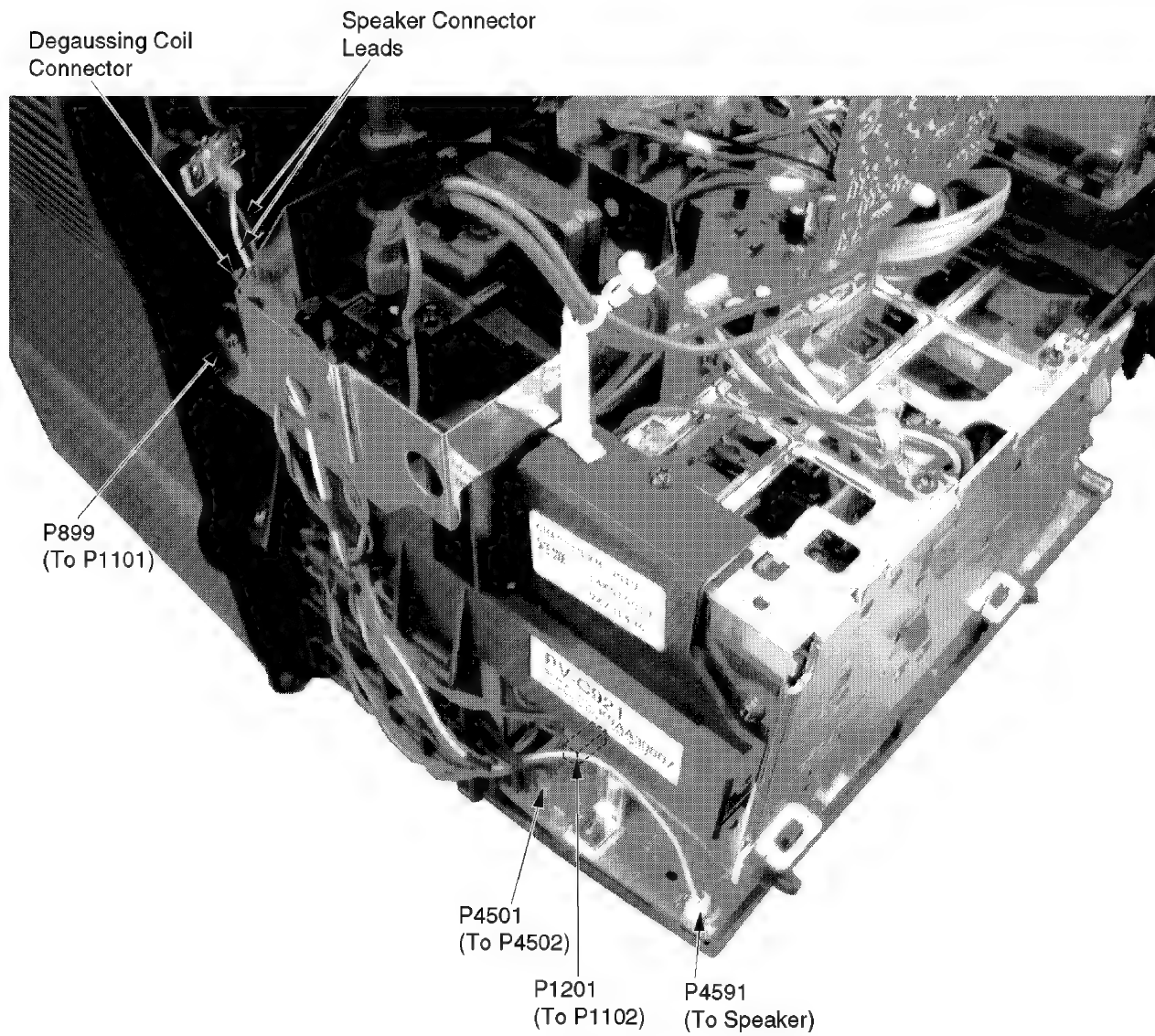


Fig. 9-2

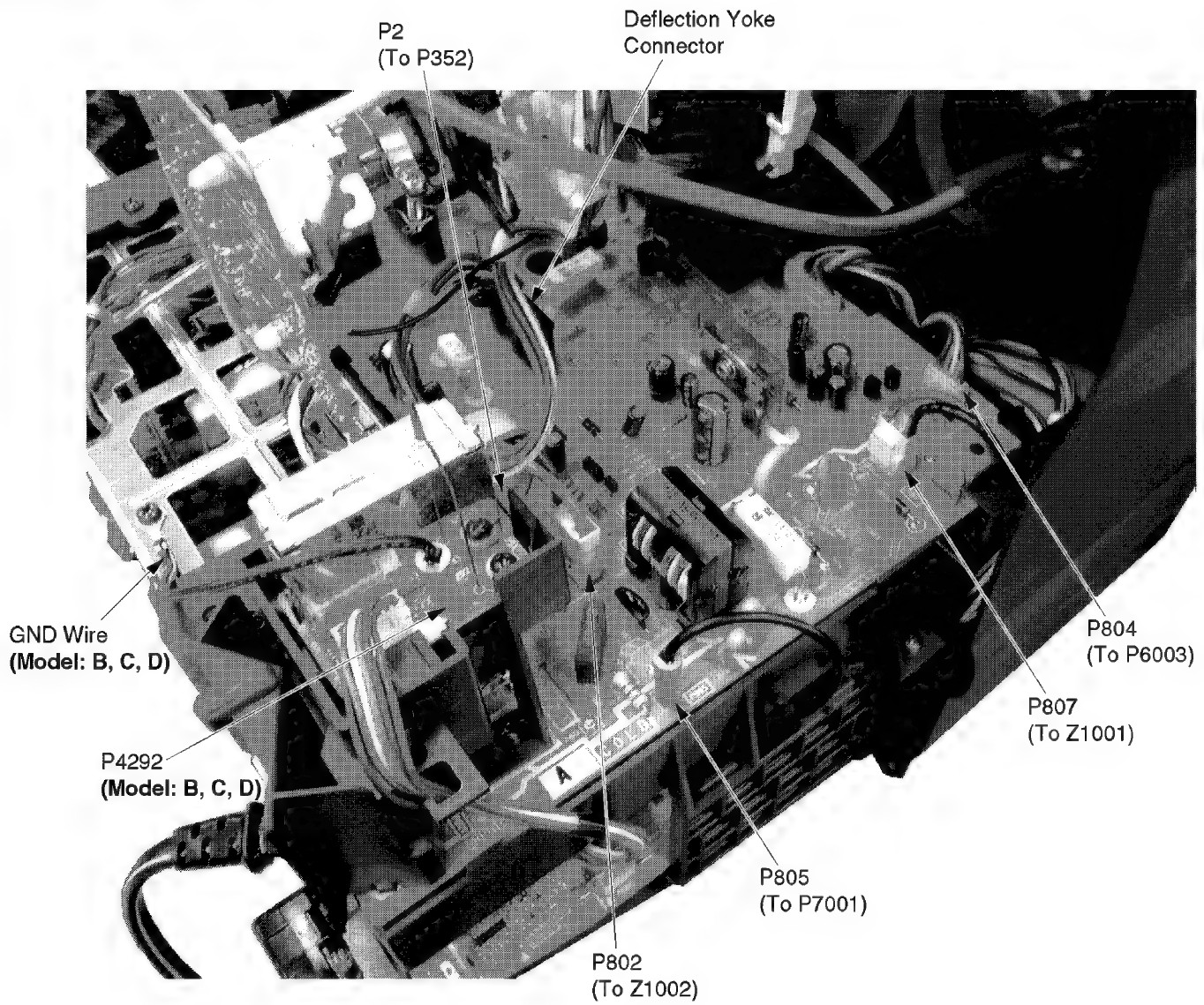


Fig. 9-3

### COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D

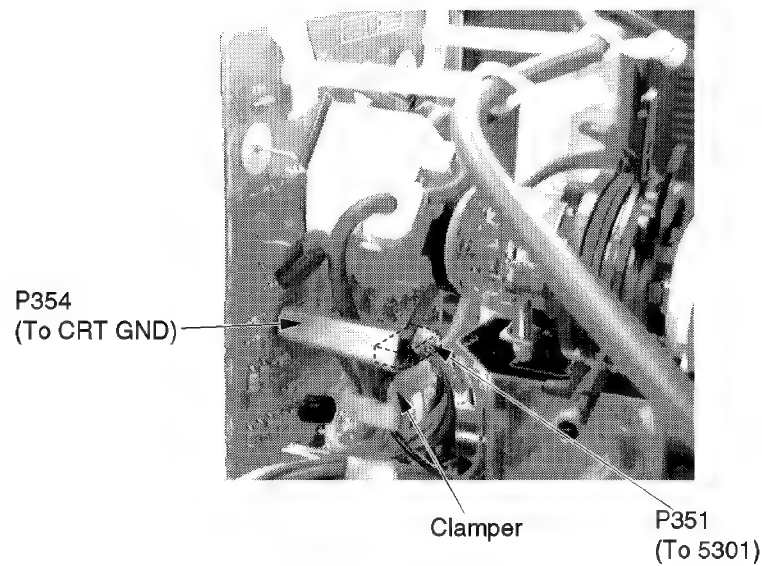
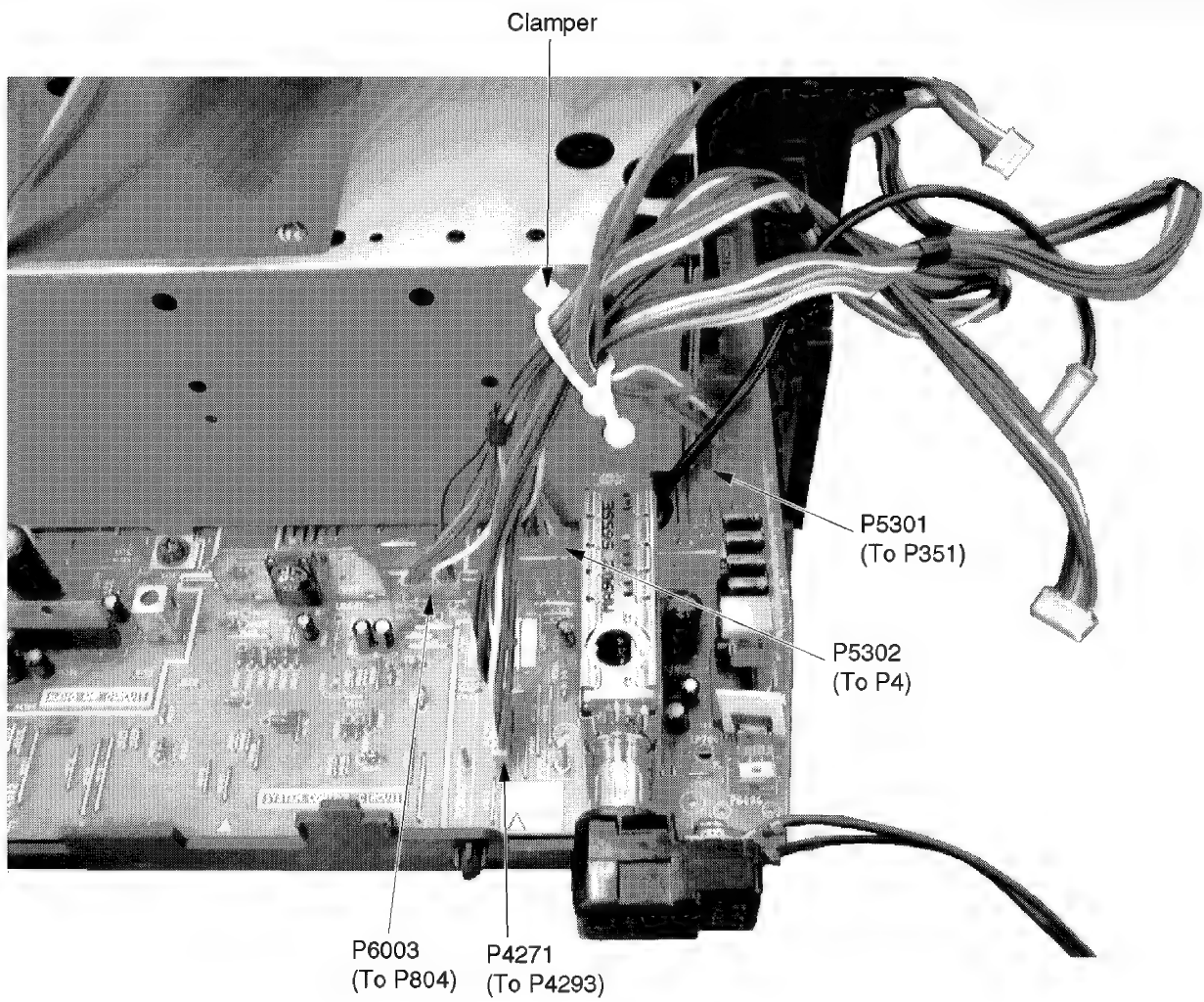


Fig. 9-4

### 5.1.13. HOW TO SET TRACKING TO THE NEUTRAL POSITION

Ejecting the cassette tape and then reinserting it will reset the tracking to the Neutral position.

### 5.1.14. BLACK SCREWS ON THE CHASSIS

Black Screws are used on the Mechanism Chassis to identify screws that require adjustment.

### 5.1.15. HOW TO RESET ALL COMBINATION VCR MEMORY FUNCTIONS

To reset (clear) the select language, channel auto set and set clock functions to their initial power on condition (power on, **no** cassette inserted), hold down the PLAY and FF buttons on the unit together for more than 5 seconds.

Power will shut off.

### 5.1.16. HOW TO CONFIRM AUTO CLOCK SET FEATURE

1. Connect an RF cable from the output of one unit to the input of the test unit.
2. Select corresponding RF channels.
3. Playback a recording of P.B.S. channel including clock set data and confirm this feature.

### 5.1.17. VARIABLE VOLTAGE ISOLATION TRANSFORMER

An Isolation Transformer should always be used during the servicing of Combination VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect Combination VCR from being damaged by accidental shorting that may occur during servicing.

Also, when troubleshooting the above type of Power Supply Circuit, a variable isolation transformer is required in order to increase the input voltage slowly.

### 5.1.18. SPECIAL NOTE

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

### 5.1.19. REPLACEMENT PROCEDURE FOR LEADLESS (CHIP) COMPONENTS

The following procedures are recommended for the replacement of the leadless components used in this unit.

#### 1. Preparation for replacement

##### a. Soldering Iron

Use a pencil-type soldering iron that uses less than 30 watts.

##### b. Solder

Eutectic Solder (Tin 63 %, Lead 37 %) is recommended.

##### c. Soldering time

Do not apply heat for more than 4 seconds.

##### d. Preheating

Leadless capacitor must be preheated before installation. - (266 °F ~ 302 °F)

(130 °C ~150 °C) for about 2 minutes.

#### Note:

a. Leadless components must not be reused after removal.

b. Excessive mechanical stress and rubbing of the component electrode must be avoided.

#### 2. Removing the leadless component

Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes is melted, remove the leadless component with a twisting motion.

#### Note:

a. Do not attempt to lift the component off the board until the component is completely disconnected from the board by a twisting action.

b. Be careful not to break the copper foil on the printed circuit board.

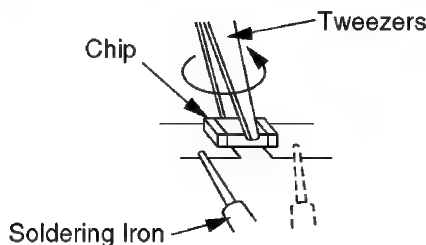


Fig. 10-1

#### 3. Installing the leadless component

##### a. Presolder the contact points on the circuit board.

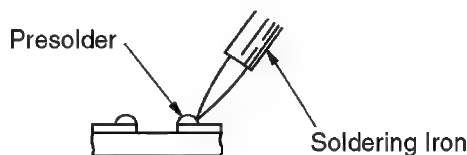


Fig. 10-2

##### b. Press the part downward with tweezers and solder both electrodes as shown below.

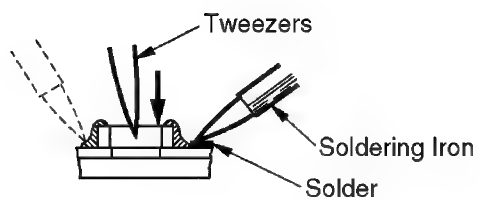


Fig. 10-3

**Note:**

Do not glue the replacement leadless component to the circuit board.

### 5.1.20. MODEL NO. IDENTIFICATION MARK

Use Marks shown in the chart below to distinguish the different models included in this Service Manual.

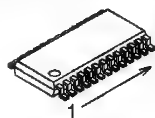
MODEL	MARK
PV-C911	A
PV-C921	B
PV-C931W	C
PV-C921-K	D
Not Used	Z

**Note:**

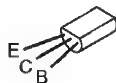
Refer to Item 3 of Schematic Diagram Notes of Schematic Diagram and Circuit Board Layout Notes, for mark "Z."

## 5.2. IC, TRANSISTOR AND CHIP PART INFORMATION

### GENERAL C.B.A./ASS'Y PARTS



MN3885S, AN3371SB,  
AT24C01A10SI, M24C01-MN6  
BR24C01AFWE2, MB3778PF,  
AN3846SC, KS24C011IS,  
M24C01-MN6



2SC945A, 2SA733,  
2SC1684, 2SC1473A,  
2SA1767, 2SB1221,  
2SC1473, 2SC2482,  
2SA1321TPE6, 2SC2631



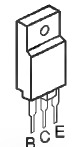
2SD601, 2SD814A  
2SD601A, 2SB709A,  
2SD1030, 2SC2412K1,  
2SA1037K146R



2SD637,  
2SD2259,  
2SD1858



2SC2785,  
2SA1175



2SD2586LBK,  
2SB940

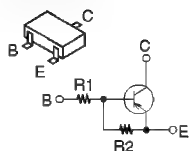


2SC4015,  
2SB1322A

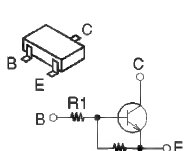


2SC3311A

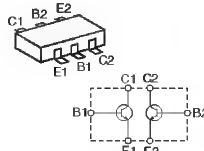
### MAIN C.B.A.



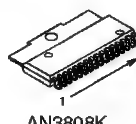
UN2112 (R1=22K, R2=22K),  
DTA124EK (R1=22K, R2=22K)



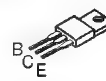
DTC124EK (R1=22K, R2=22K),  
UN2212 (R1=22K, R2=22K)



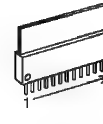
IMX1, XN4501,  
HN1C01F



AN3808K



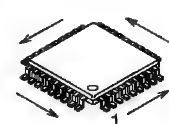
2SD2375, 2SD2396,  
2SC3852



LA4285

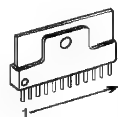


2SK374



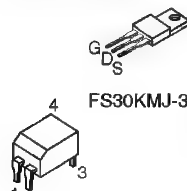
AN5367FB,  
AN3479FBP,  
D784928YG114,  
LC8632165S53TT

### TV MAIN C.B.A.



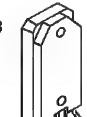
LA7837

### POWER SUPPLY C.B.A.



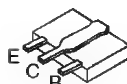
FS30KMJ-3

ON3131-S.KT,  
ON3131-R.KT

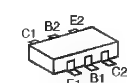


STR-F6624

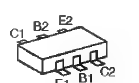
### SUB POWER C.B.A.



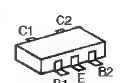
2SB789A,  
2SB766A,  
2SD874A



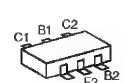
XN4601



HN1B10F



XN1501

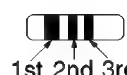


IMZ1

### HOW TO READ THE IDENTIFICATION MARK OF CHIP COMPONENTS.

MARKING	PART NO.	MARKING	PART NO.
B	2SB709A	5C	XN4601
E	2SB789A	5H	XN4501
F	2SA1037K146R	5R	XN1501
Y	2SD601	X1	IMX1
Y	2SD874A	1Z	2SD1030
Z	2SD601A	Z1	IMZ1
2B	2SK374	15	DTA124EK
6B	UN2112	25	DTC124EK
8B	UN2212		

### HOW TO READ THE VALUES OF THE CYLINDRICAL TYPE CHIP COMPONENTS.



The widest color band must be read first for value.

#### (a) RESISTOR

There are two types (ERD10LLJ... and ERD10TLJ...) of chip parts.

- 1) ERD10LLJ : Refer to above type.
- 2) ERD10TLJ : The narrow color band must be read first for value.

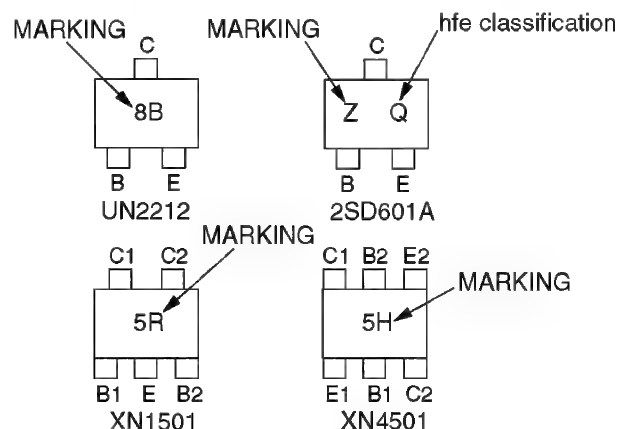
If this part is included in the parts list, be sure that the color band is read properly when servicing.

#### (b) CAPACITOR

Because of the width of the color bands, the reading direction cannot be specified. However, the color band can be read on either side. Be sure to confirm the value using the schematic diagram.

#### CAUTION :

Once chip parts are removed, they must not be reused. Always use a new part when installing a chip part.





## 6 DISASSEMBLY/ASSEMBLY PROCEDURES

### 6.1. CABINET SECTION

#### 6.1.1. Disassembly Flowchart

Perform all disassembly procedures in the order described in the "Disassembly Flowchart" shown below. When reassembling, use the reverse procedure.

#### CAUTION:

Disconnect AC plug or DC cord before disassembly.

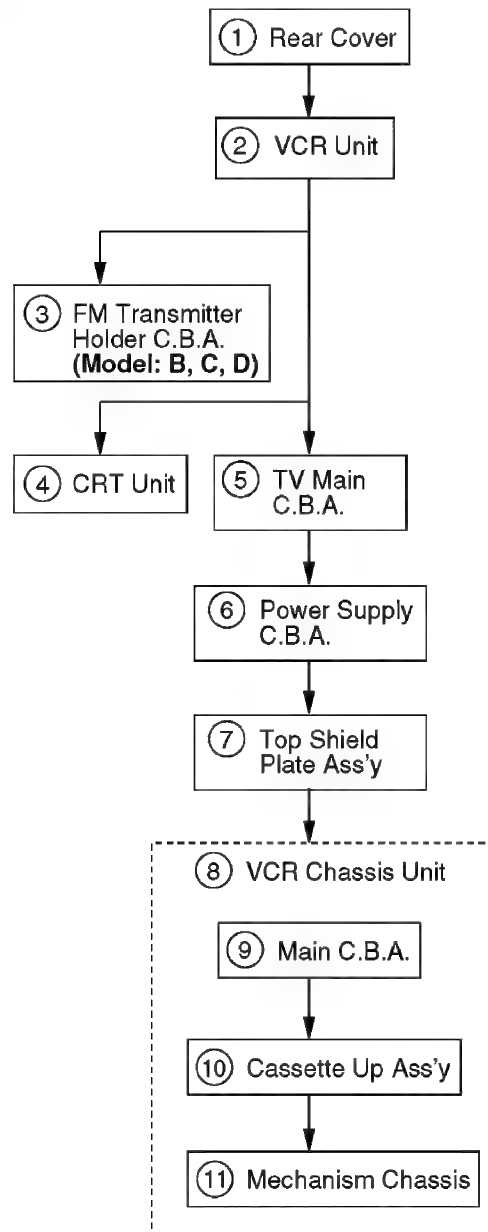


Fig. D1

#### 6.1.2. Disassembly Method

STEP /LOC. No.	PART	Fig. No.	REMOVE	Note
①	Rear Cover	D2	8(S-1)	---
②	VCR Unit	D3 D4	Anode Cap, P354, CRT C.B.A., Deflection Yoke Connector, Degaussing Coil Connector, Clampers, P4591, 2 Tabs, 2 Guide Tabs	1
③	FM Transmitter Holder C.B.A.	D6	2(S-2), (S-3), 2(L-1), P4292, P4293, Clamper, FM Transmitter Holder	---
④	CRT Unit	D2	4(S-4)	2
⑤	TV Main C.B.A.	D5 D6	3(S-5), 3(S-6), P899, P4502, P804, P4, P802, P351, P807, P805, Clampers, TV Frame	---
⑥	Power Supply C.B.A.	D6	2(S-7), P1201	---
⑦	Top Shield Plate Ass'y	D6	4(S-8), (S-9)	---
⑧	VCR Chassis Unit	D6	2(S-10), 2(S-11), 2(L-2)	3
⑨	Main C.B.A.	D6	P3001, P6202, P6201, P4001	4
⑩	Cassette Up Ass'y	D6	2(S-12), (S-13), (P-1), (L-3)	5
⑪	Mechanism Chassis	D6	-----	---
↑ A	↑ B	↑ C	↑ D	↑ E

#### How to read chart shown above:

A: Order of Procedure steps.

When reassembling, perform steps(s) in reverse order.

These numbers are also used as the identification (location) No. of parts in Figures.

B: Part to be removed or installed.

C: Fig. No. showing Procedure or Part Location.

D: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.

6(S-1) = 6 Screws (S-1), 6(L-1) = 6 Locking Tabs (L-1),

(P-1) = Spring (P-1)

E: Refer to "Notes in chart."

## COMPARISON CHART OF MODELS &amp; MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D

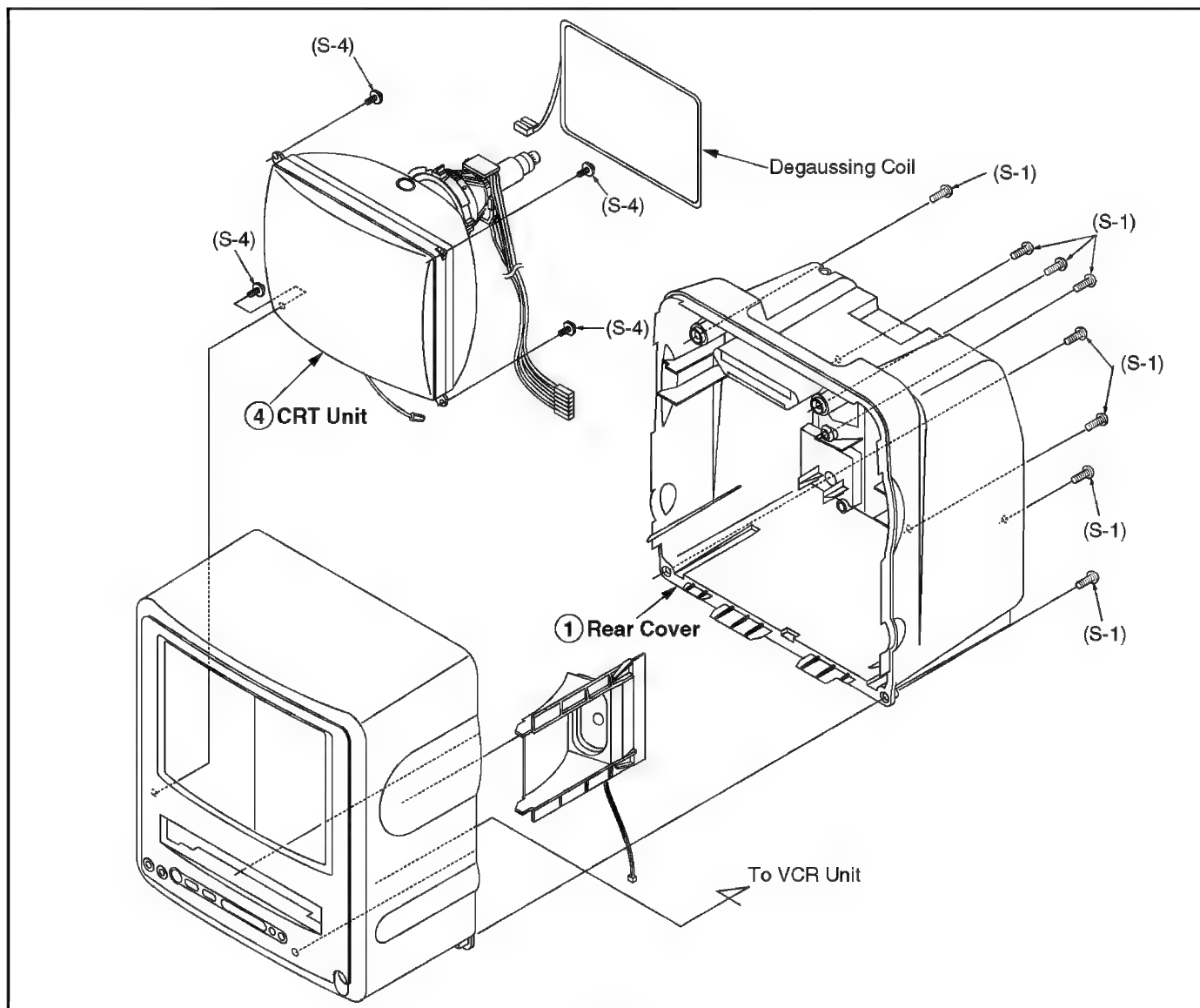


Fig. D2

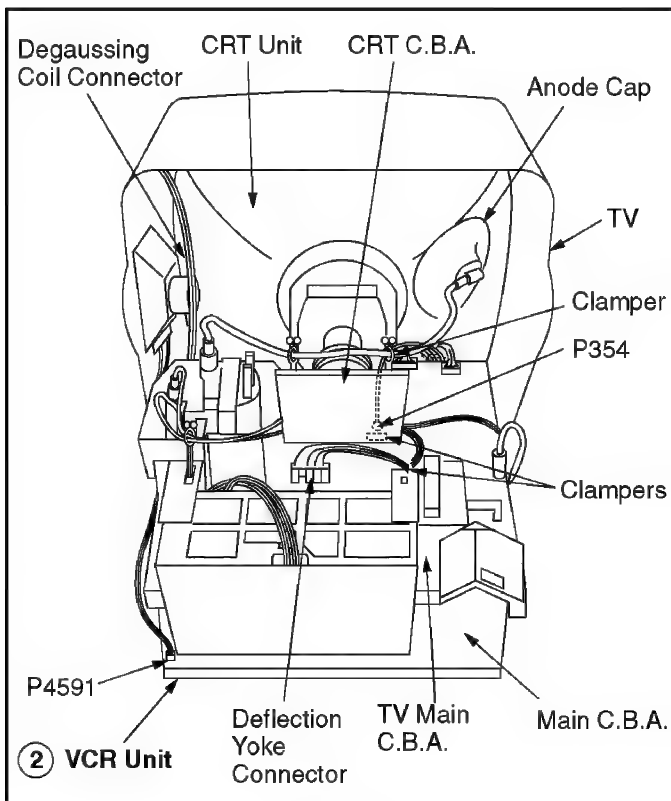


Fig. D3

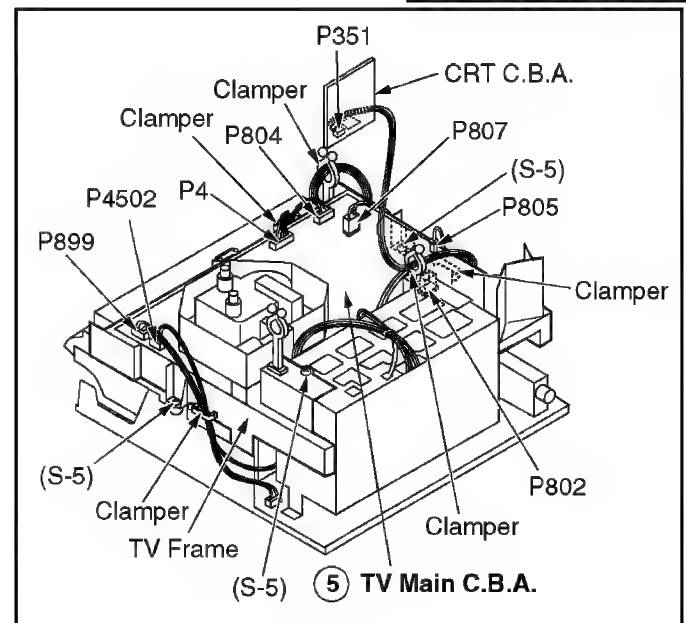


Fig. D5

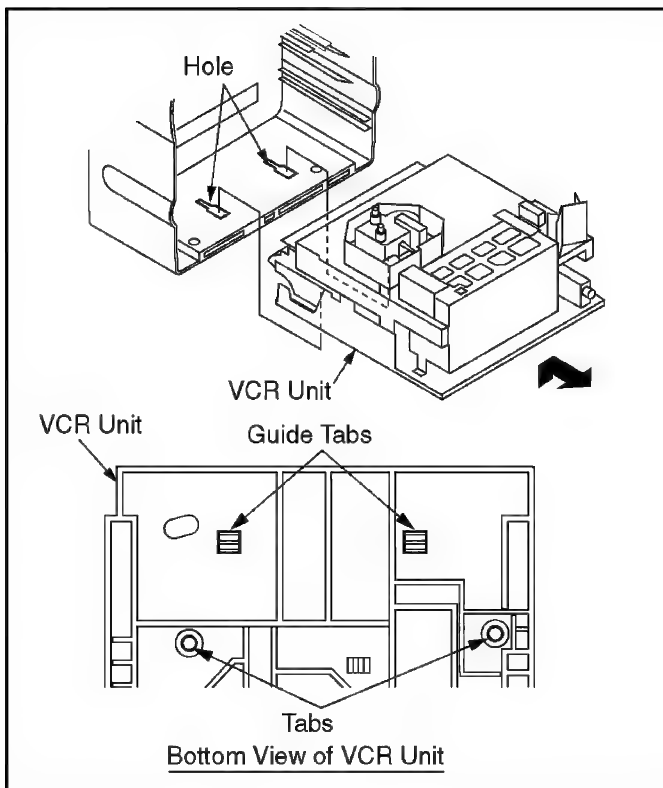


Fig. D4

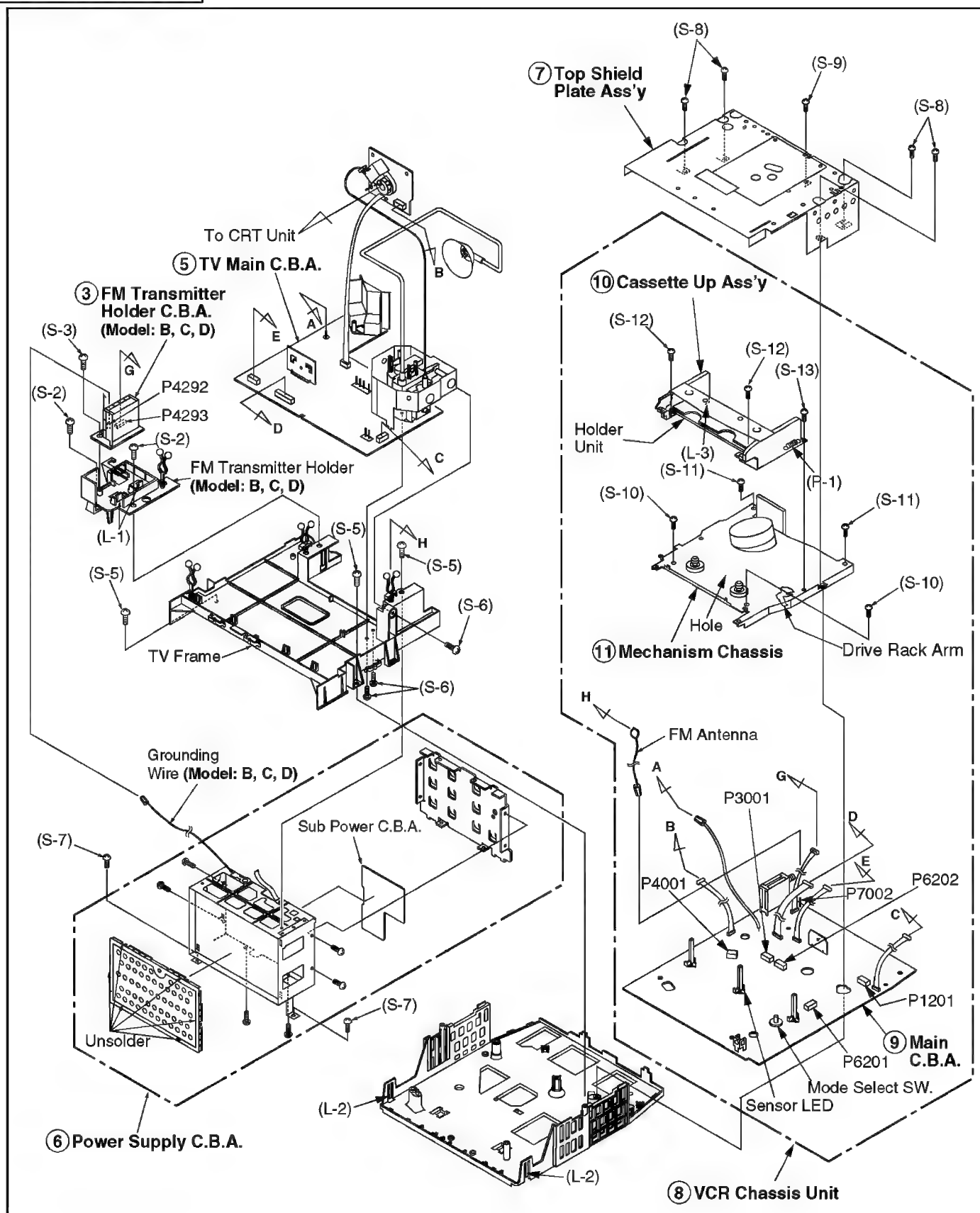


Fig. D6

## COMPARISON CHART OF MODELS &amp; MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D

## 6.1.2.1. Notes in chart

## 1. Installation of VCR Unit

**CAUTION:**

Opener Lever may be damaged when VCR Unit is installed, with Cassette Door-Lid and Opener Lever of Cassette Up Ass'y set incorrectly.

- When installing the VCR Unit, swing the Cassette Door-Lid all the way open until the Cassette Door tab clears the Opener Lever.
- Make sure that all guide tabs are aligned properly. Then, press the VCR Unit straight in.

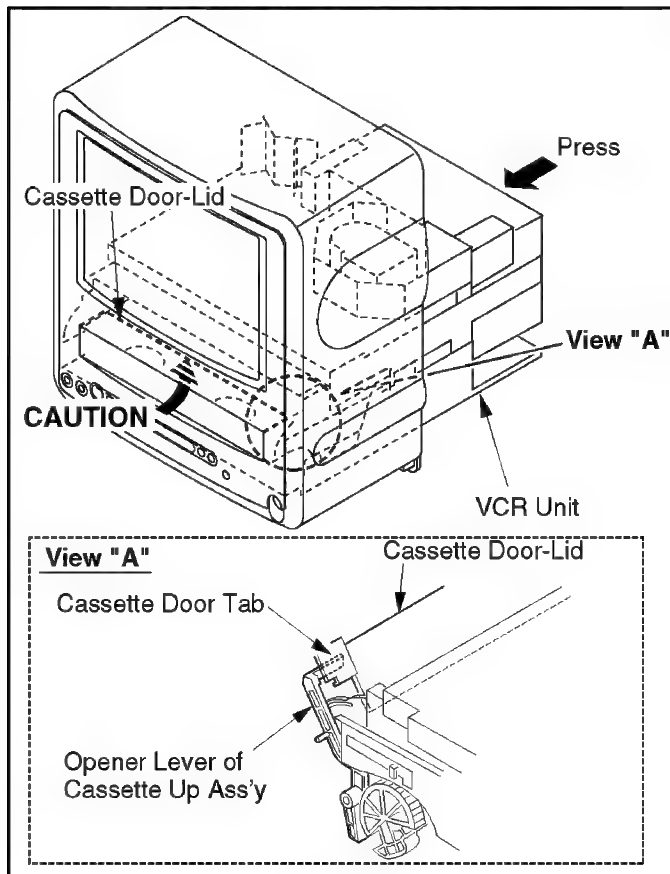


Fig. D7

## 2. Removal of CRT Unit

Place the Unit face down on a soft cloth before removing the CRT Unit.

**Installation of CRT Unit**

When installing Degaussing Coil, place the Degaussing Coil correct position.

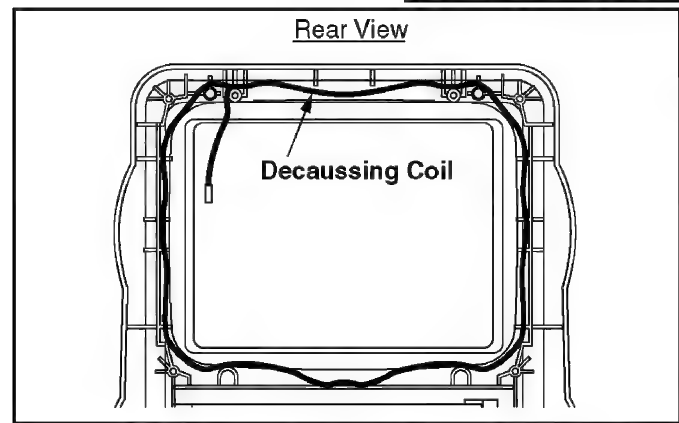


Fig. D8

## 3. Installation of VCR Chassis Unit

When installing 2 Screws (S-10), slide the Holder Unit of the Cassette Up Ass'y (Refer to "METHOD FOR LOADING/UNLOADING OF MECHANISM" in Service Notes) to tighten screws. Then, slide it back to the **EJECT** Position.

Make sure that Mechanism and Cassette Up Ass'y are in the **EJECT** Position. (Refer to "EJECT Position Confirmation" in Disassembly/Assembly Procedures.)

## 4. Removal of Main C. B. A.

Work carefully so as not to break Sensor LED when lifting the Mechanism Chassis and Cassette Up Ass'y.

**Installation of Mechanism Chassis and Cassette Up Ass'y onto Main C.B.A.**

- Make sure the Mode Select SW. on the Main C.B.A. is in **EJECT** position. If not, rotate the Mode Select SW. until the alignment projection is in the **EJECT** Position.
- Make sure the Mechanism and Cassette Up Ass'y are in the **EJECT** Position. (Refer to "EJECT Position Confirmation" in DISASSEMBLY/ASSEMBLY PROCEDURES.)

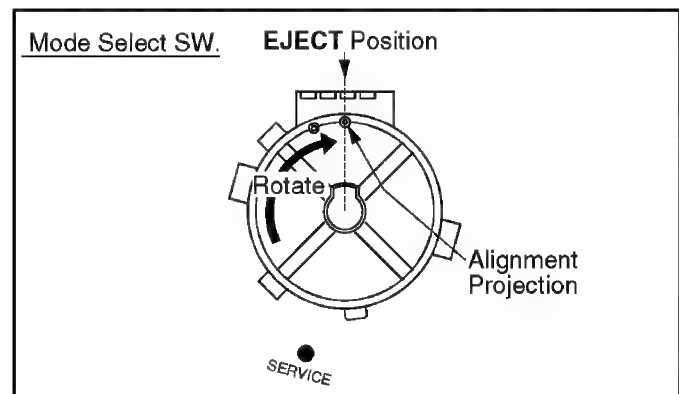


Fig.D9

- Install the Mechanism Chassis and Cassette Up Ass'y straight onto the Main C.B.A. so that the Sensor LED clears the hole in the Mechanism Chassis and that 4 Connectors (P6201, P6202, P3001, and P4001) are aligned and seated securely.

## 5. Installation of Cassette Up Ass'y

- Confirm that the Locking Tab (L-3) under the Cassette Up Ass'y is in Hole on the Mechanism Chassis when installing the Cassette Up Ass'y. Then, slide the Cassette Up Ass'y towards the back.

- b. When installing 2 Screws (S-12), slide the Holder Unit (Refer to "METHOD FOR LOADING/UNLOADING OF MECHANISM" in Service Notes) to tighten screws. Then, slide it back to the **EJECT** Position.
- c. Hook Spring (P-1) to the Drive Rack Arm on the Mechanism Chassis.

## 6.2. MECHANISM SECTION

### 6.2.1. Disassembly/Reassembly Method

This procedure starts with the condition that the cabinet parts and Main C.B.A. have been removed.  
When reassembling, perform the step(s) in the reverse order.

**Perform all disassembly/reassembly and alignments procedures in EJECT Position.**

Step/Loc. No.	Prior Step(s)	Part	Fig. No.	Remove	Alignment/Adjustment
①	-----	Grounding Plate Unit	J2-1	(S-1)	Adjustment
②	-----	Full Erase Head	J2-1	(L-1)	
③	1	Cylinder Unit	J2-1	P4092, Unsolder, 2(S-2), 3(S-3), Head Amp C.B.A.	TAPE INTERCHANGEABILITY Adjustment
④	-----	Capstan Belt	J3-1	-	
⑤	-----	Support Angle	J3-1	(S-4), (S-5)	
⑥	5	Intermediate Gear B	J3-1	(L-2)	Gear Alignment
⑦	4,5,6	Main Cam Gear	J3-1	Main Cam Push Nut	Gear Alignment
⑧	4	Center Clutch Unit	J4-1	(W-1)	
⑨	4,8	Changing Gear Spring	J4-1	-	
⑩	4,8,9	Changing Gear	J4-1	-	
⑪	4,8,9,10	Idler Arm Unit	J4-1	-	
⑫	-----	Reel Gear	J5-1	2(L-3)	
⑬	4,5,6,7,8,9,10	Main Rod	J5-1	(W-2), (L-4)	Gear Alignment
⑭	-----	Stopper Angle	J6-1	(S-6)	
⑮	4,5,14	Capstan Rotor Unit	J6-1	-	
⑯	4,5,14,15	Oil Seal	J6-1	-	
⑰	4,5,14,15	Capstan Stator C.B.A.	J6-1	P2503, 2(S-7)	
⑱	-----	MR Head	J6-1	(S-8), Unsolder	MR HEAD GAP Adjustment
⑲	4,8,9,10,13	T Loading Arm Unit	J7-1	-	Gear Alignment
⑳	4,5,6,7,8,9,10,13,19	S Loading Arm Unit	J7-1	-	Gear Alignment
㉑	-----	T Brake Unit	J8-1	-	
㉒	-----	Tension Control Arm Unit	J8-1	3(L-5)	
㉓	21	T Reel Table	J8-1	-	
㉔	22	S Reel Table	J8-1	-	
㉕	22	Tension Arm Unit	J8-1	2(L-6), (P-1), (P-2)	
㉖	22,25	Loading Post Base-T Unit	J9	-	P2 AND P3 POST HEIGHT, TAPE INTERCHANGEABILITY Adjustment
㉗	22,25	Loading Post Base-S Unit	J9	-	
㉘	-----	Opener Piece	J10-1	2(L-7)	
㉙	4,5,6,7	Drive Rack Arm	J10-1	-	
㉚	28	Pinch Arm Unit	J10-1	-	
㉛	28,30	P5 Arm Unit	J10-1	-	
㉜	5,6,28	Intermediate Gear A	J10-1	-	Gear Alignment
㉝	38	Motor Block Unit	J11-1	2(S-9)	
㉞	-----	Audio Control Head Unit	J11	(S-10)	TAPE INTERCHANGEABILITY Adjustment
㉟	5,6,28,30,32,33	Lift Gear	J11	-	
㊱	4,5,14,15,33	Capstan Holder Unit	J11	3(S-11)	
㊲	22,25	Tension Arm Boss	J11	(L-8)	
㊳	-----	Cleaner Arm Unit (Model: A)	J11	(L-9)	

A

B

C

D

E

F

**How to read chart shown above:**

A: Order of Procedure steps.

When reassembling, perform steps(s) in reverse order.

These numbers are also used as the identification (location) No. of parts in Figures.

B: Steps to be completed prior to the current step.

C: Part to be removed or installed.

D: Fig. No. showing Procedure or Part Location.

E: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.

(S-1) = Screw (S-1), (L-1) = Locking Tab (L-1),

(W-1) = Washer (W-1), (P-1) = Spring (P-1),

(C-1) = Cut Washer (C-1)

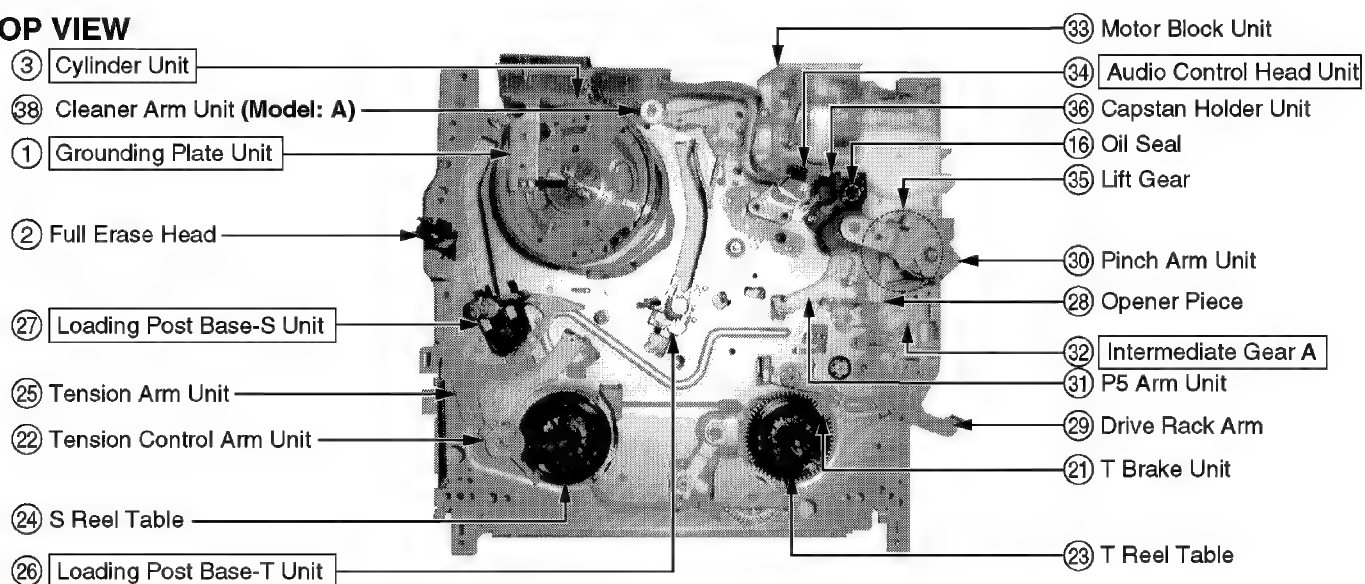
F: Alignment/Adjustment which is required when installing or replacing each Parts.



## 6.2.2. Inner Parts Location

**Note:** BOX indicates alignment (Gear Alignment or Mechanical Adjustment) required when a part is replaced.

### TOP VIEW



### BOTTOM VIEW

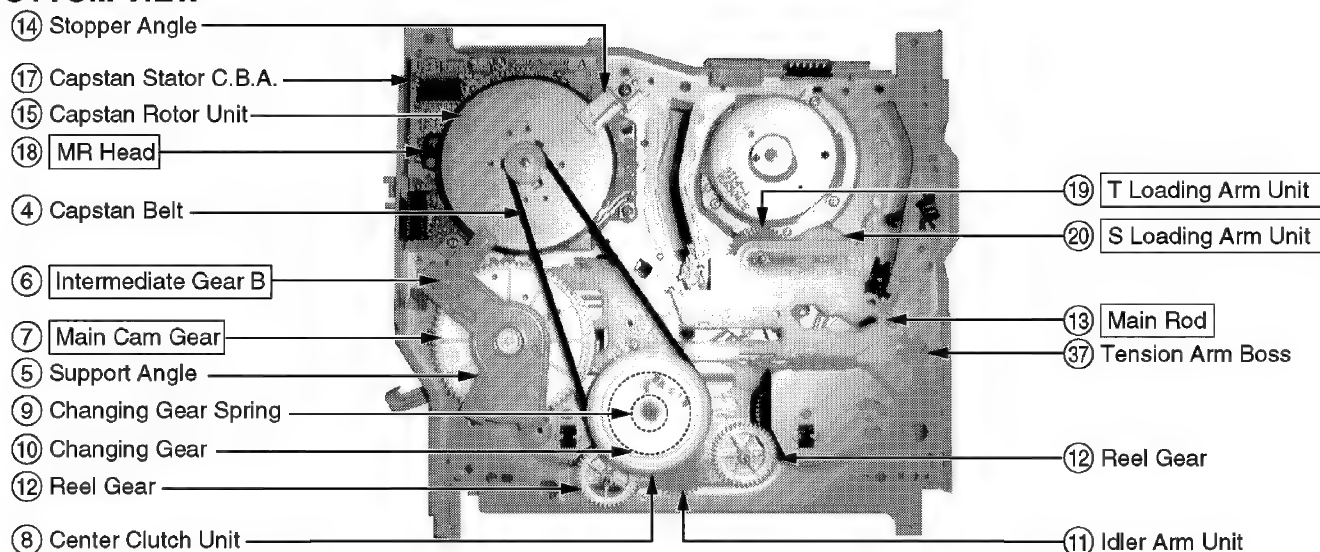


Fig. J1-1

### 6.2.3. EJECT Position Confirmation

Check the following alignment points to confirm that the Mechanism and Cassette Up Ass'y are in the **EJECT** Position from the top side.

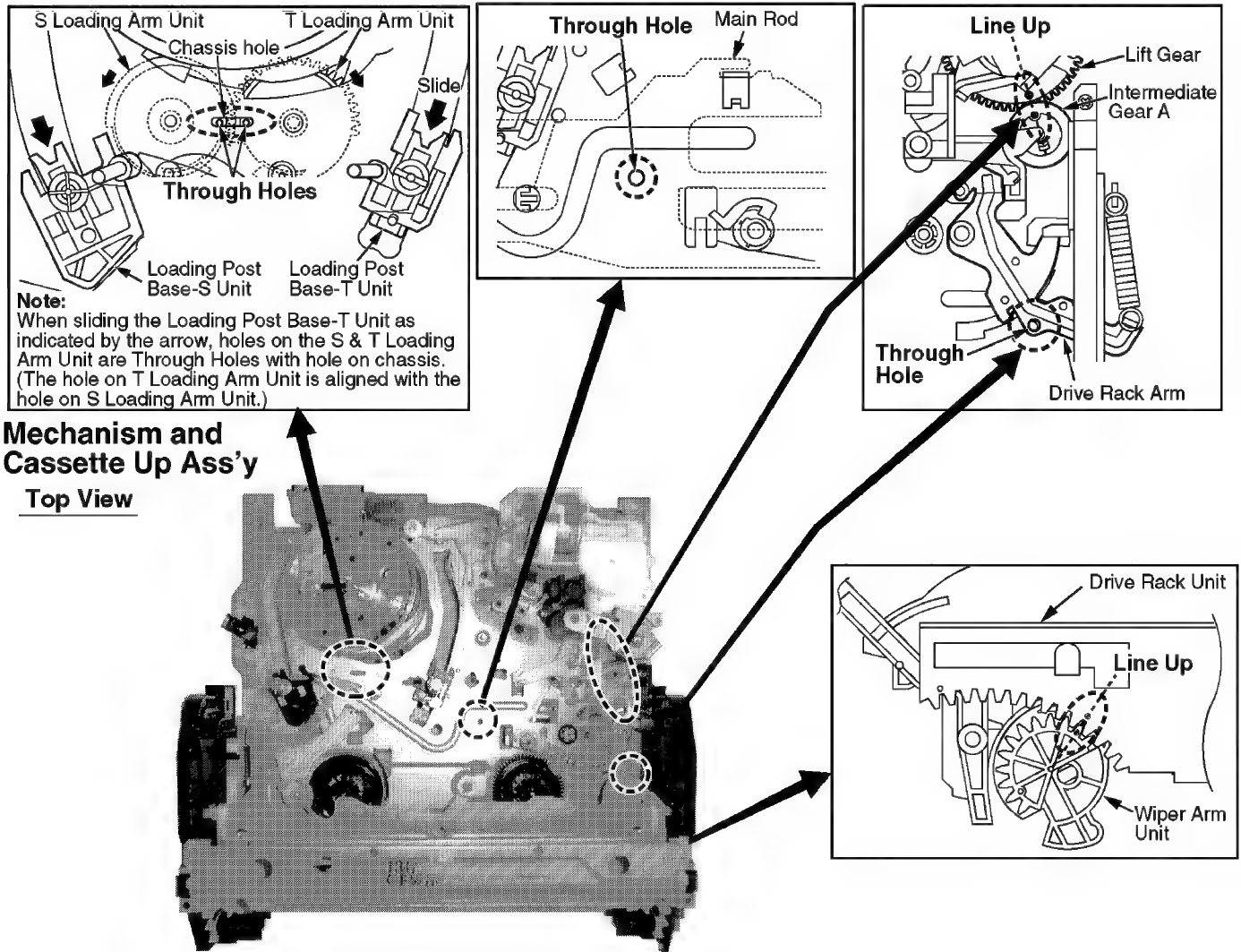


Fig. J1-2

## 6.2.4. Grounding Plate Unit, Full Erase Head, and Cylinder Unit

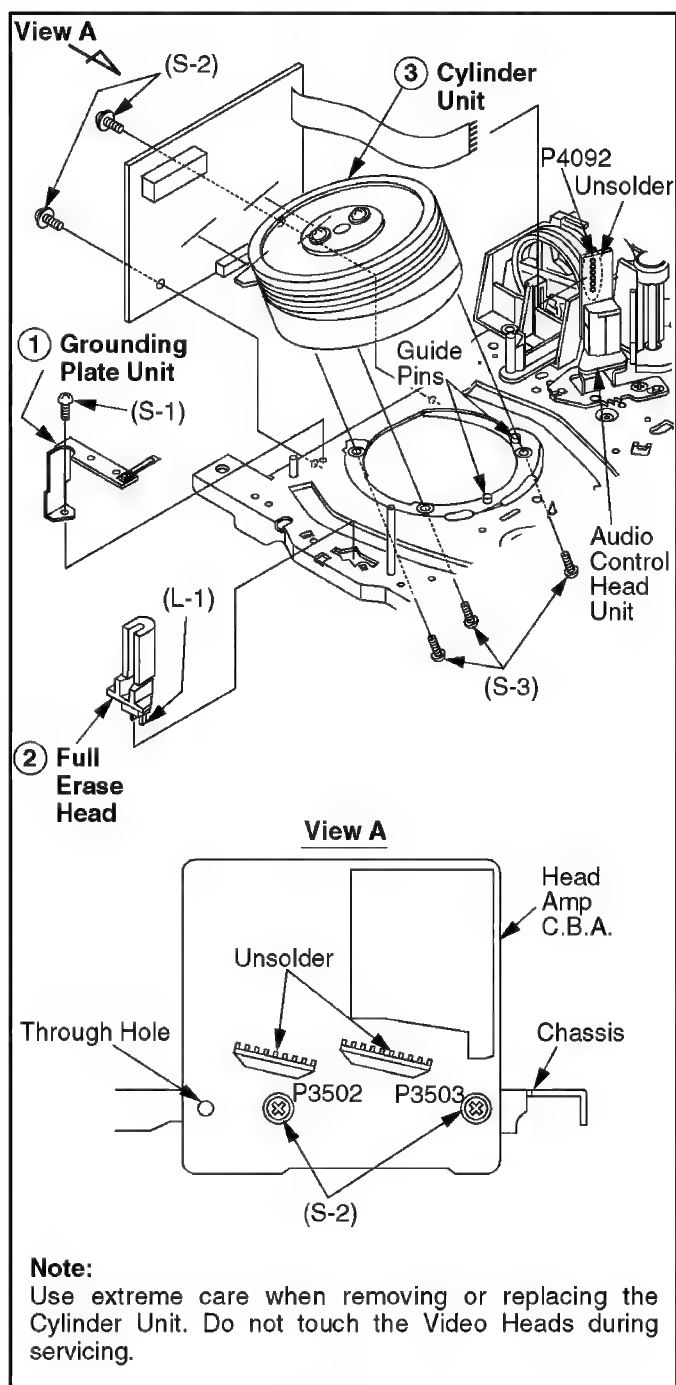


Fig. J2-1

## 6.2.4.1. Reassembly Notes

### 1. Adjustment of Grounding Plate Unit

a. After installing, make sure that the Grounding Plate Unit, on the top side of mechanism chassis, is positioned on the front side of the Cylinder shaft so that the center line of the plate is just less than 1.0 mm measured from the center of the Cylinder shaft.

If required, adjust the plate position by loosening Screw (S-1).

Never install the Grounding Plate Unit on the rear side of the Cylinder shaft.

Incorrect positioning will cause cylinder buzz.

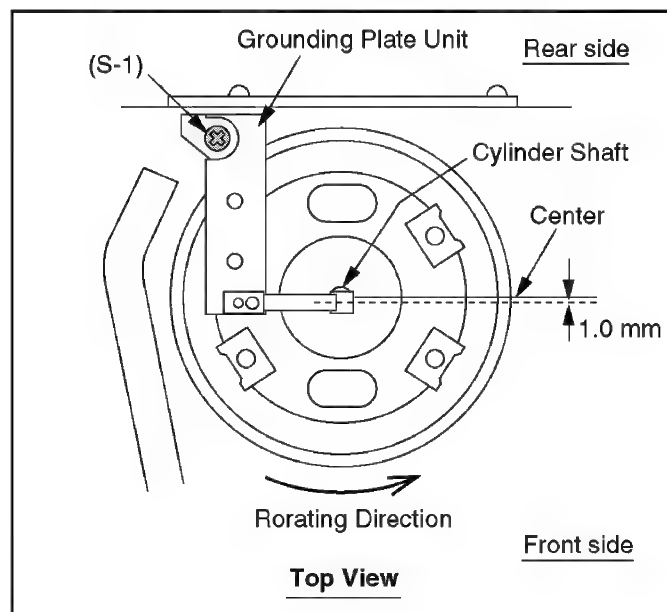


Fig. J2-2

2. After replacing the Cylinder Unit, clear the Total elapsed "Cylinder rotation" time (in hours) to 0. Refer to "USAGE SCREEN MODE" in SERVICE NOTES.

### 6.2.5. Capstan Belt, Support Angle, Intermediate Gear B, and Main Cam Gear

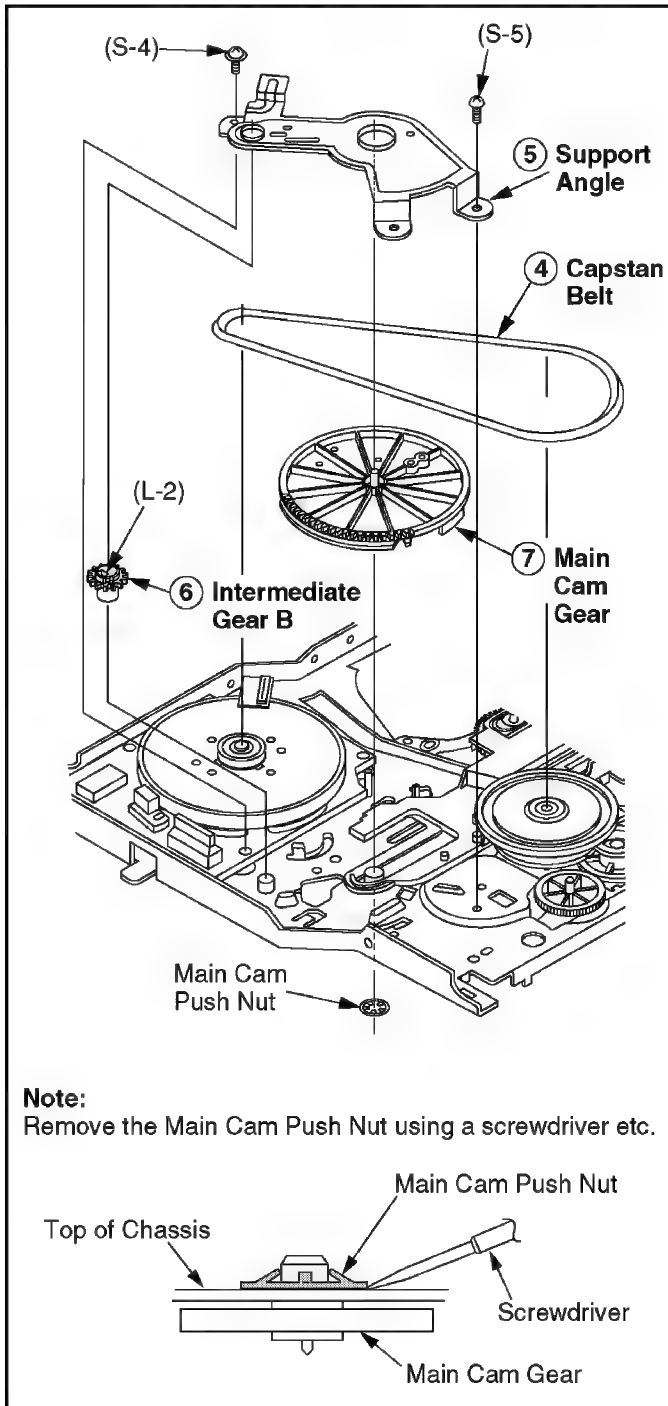


Fig. J3-1

#### 6.2.5.1. Reassembly Notes

##### 1. Alignment of Main Cam Gear, Drive Rack Arm, and Main Rod

- Confirm that the hole on Main Rod is a Through Hole with a hole on chassis.
- Confirm that the hole on Drive Rack Arm is a Through Hole with a hole on chassis.
- Install the Main Cam Gear so that the projection of Main Cam Gear is in the upward position as shown.

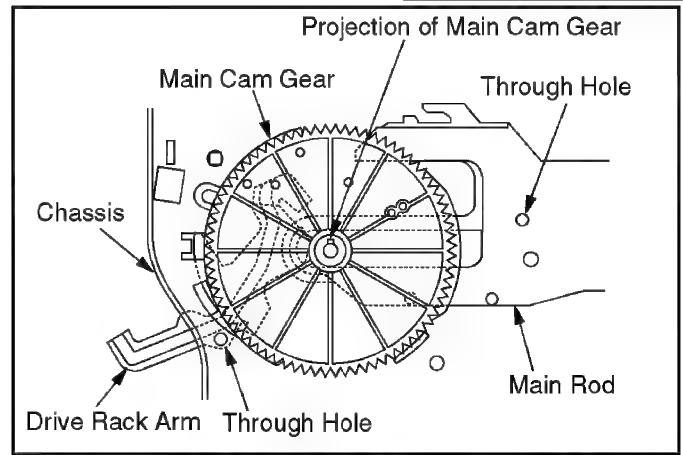


Fig. J3-2

##### 2. Confirmation/Alignment of Intermediate Gear B, Main Cam Gear, and Intermediate Gear A

- Confirm that the Hole A on Lift Gear is a Through Hole with a hole on chassis.
- Confirm that the hole on Intermediate Gear A is aligned with the hole on Lift Gear.

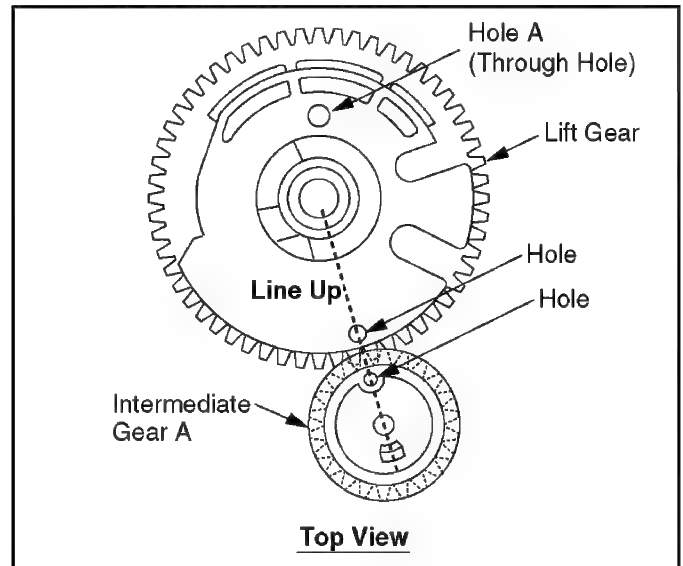


Fig. J3-3

- Install the Intermediate Gear B so that the hole on the Intermediate Gear B is aligned with the hole on the Main Cam Gear.

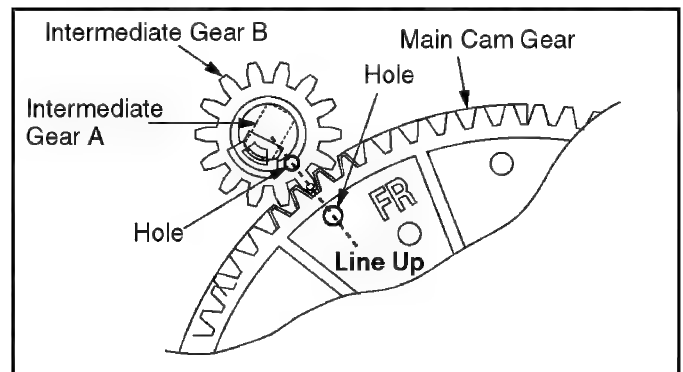


Fig. J3-4

### 3. Holes on Main Cam Gear

- a. The EJECT mode Hole on Main Cam Gear should be a Through Hole with Hole A on Support Angle in EJECT mode. The each mode Hole on Main Cam Gear should be a Through Hole with Hole B on Support Angle in each mode.

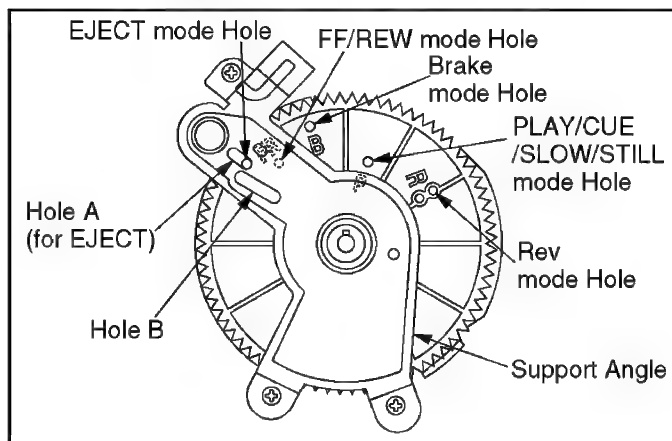


Fig. J3-5

### 4. Main Cam Gear Kit

- a. Main Cam Gear is supplied as a Main Cam Gear Kit only (Kit No. VVGS0009).

Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut.

However, Main Cam Push Nut is available separately as a replacement part.

### 5. Installation of Main Cam Gear and Main Cam Push Nut

- a. After installing the Support Angle, install the Main Cam Push Nut with Needlenose Pliers etc. so that it is flush with the chassis.

There may be some slight scratches on the Shaft of Main Cam Gear, when removing the Main Cam Gear. In case that the Main Cam Gear can be installed securely without tottering, it is fine to use the one. If any tottering, install all new parts.

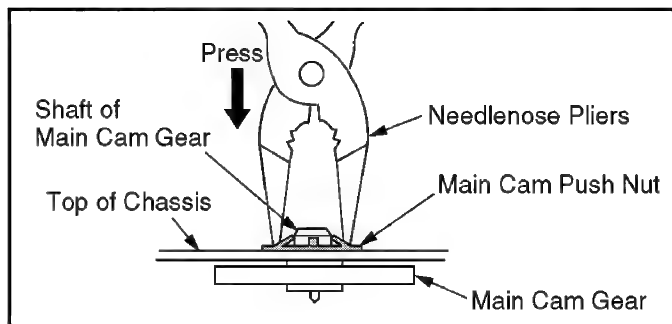


Fig. J3-6

6. The Main Cam Push Nut is not reusable. Install a new one.

## 6.2.6. Center Clutch Unit, Changing Gear Spring, Changing Gear, and Idler Arm Unit

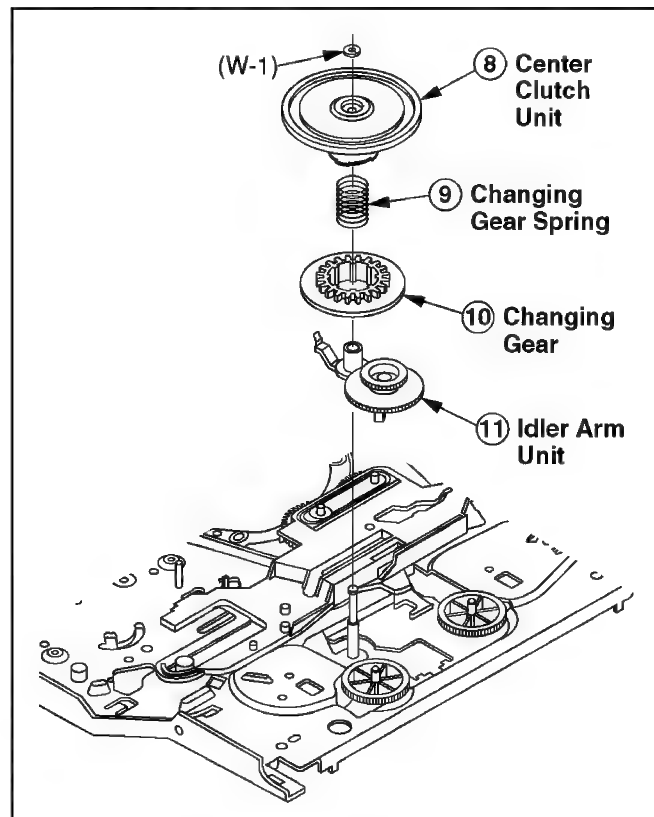


Fig. J4-1

### 6.2.6.1. Reassembly Notes

#### 1. Installation of Center Clutch Unit

- a. Fit the Center Clutch Unit into the Changing Gear.

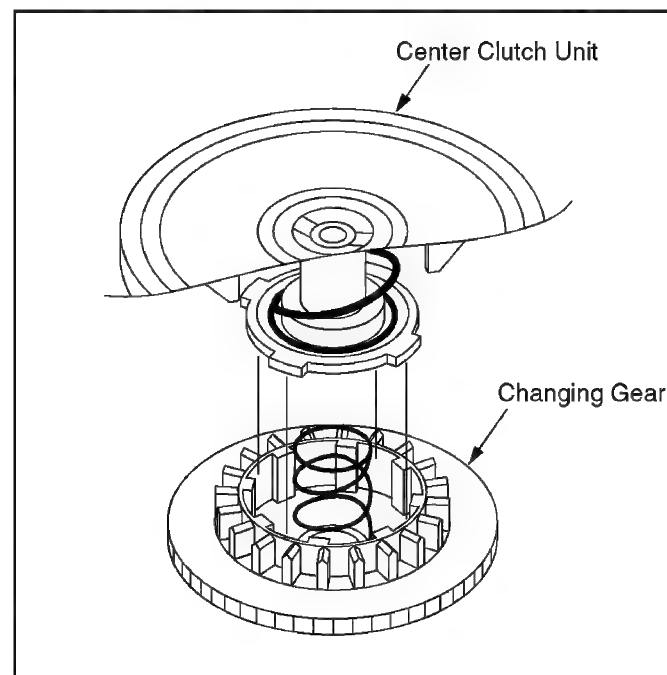


Fig. J4-2

## 6.2.7. Reel Gear and Main Rod

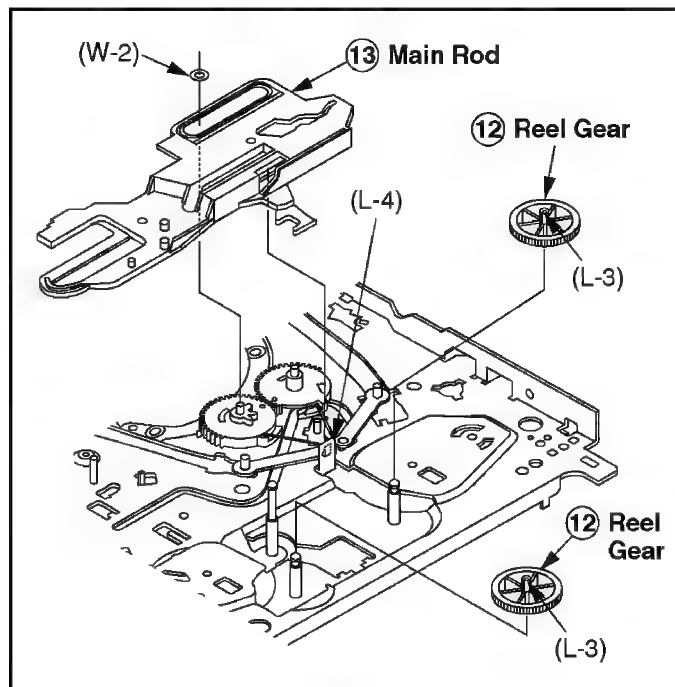


Fig. J5-1

### 6.2.7.1. Reassembly Notes

#### 1. Alignment of Main Rod and T Loading Arm Unit

- a. Align the Gear of T Loading Arm Unit with Gear of Main Rod. Confirm that the Hole on Main Rod is a Through Hole with a hole on chassis.

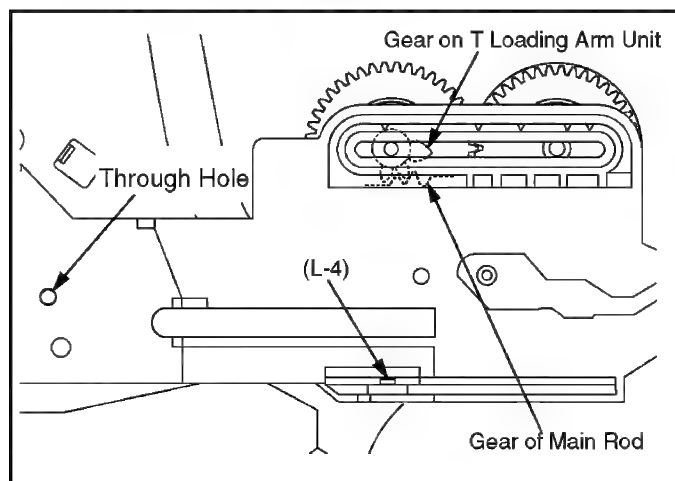


Fig. J5-2

## 6.2.8. Stopper Angle, Capstan Rotor Unit, Oil Seal, Capstan Stator C.B.A., and MR Head

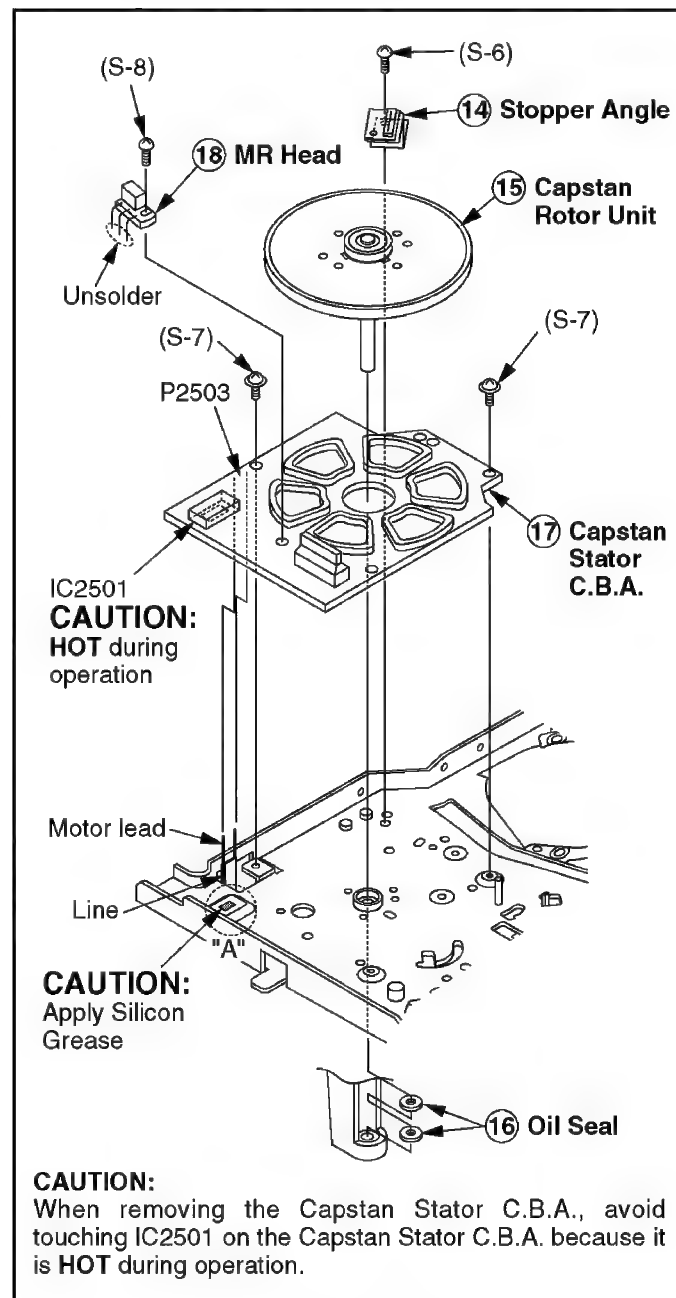


Fig. J6-1

### 6.2.8.1. Reassembly Notes

#### 1. Application of Silicon Grease

##### CAUTION:

When installing the IC2501 (AN3846SC) or Capstan Stator C.B.A., be sure to apply Silicon Grease (VFK1301) as shown. Be careful not to touch other parts with greased portion to prevent grease depletion.

### Silicon Grease Application

Portion "A"

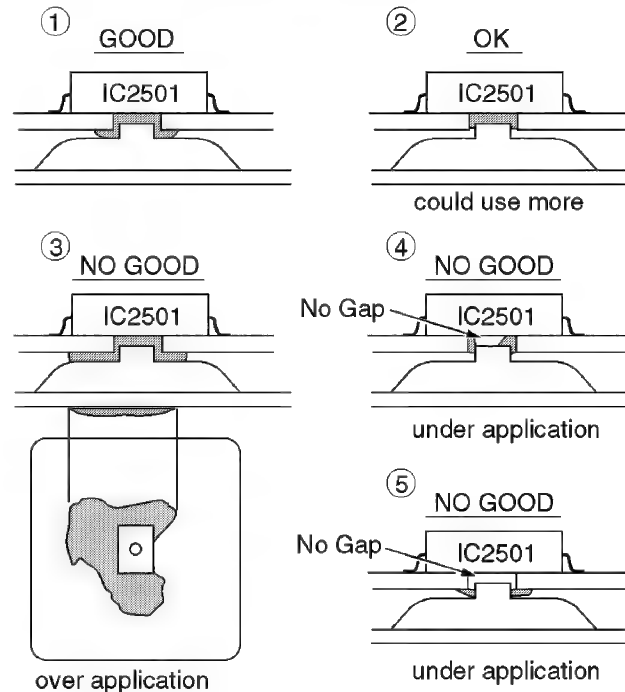
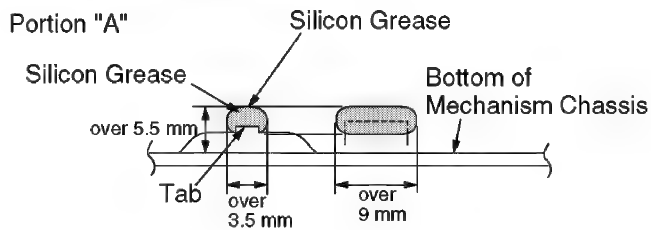


Fig. J6-2

### 2. Installation of Capstan Rotor Unit and Oil Seal

- Install the 2 Oil Seals into the Capstan Holder Unit. Then, insert the Capstan Rotor Unit Shaft into the hole of the Capstan Holder Unit so that shaft passes through 2 Oil Seals. Be careful not to scratch the Shaft or Capstan Holder Unit.
- Align the bottom of Oil Seal (A) with notch line (A).  
Align the top of Oil Seal (B) with notch line (B).

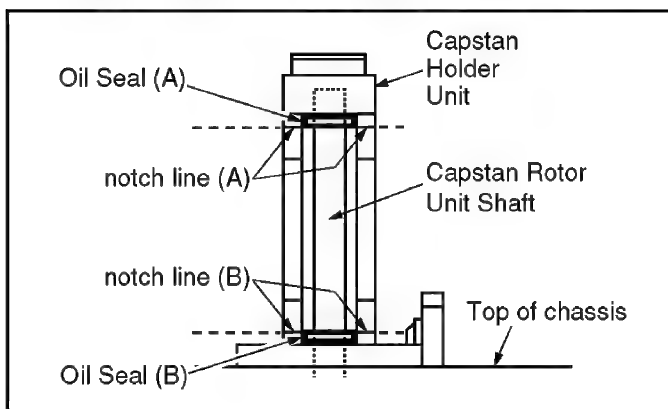


Fig. J6-3

## 6.2.9. T Loading Arm Unit and S Loading Arm Unit

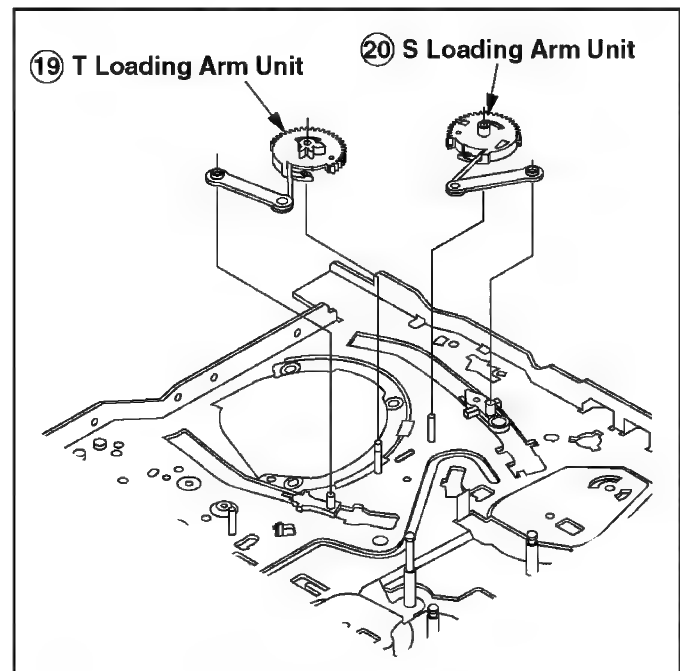


Fig. J7-1

### 6.2.9.1. Reassembly Notes

#### 1. Alignment of T Loading Arm Unit and S Loading Arm Unit

- Install the S Loading Arm Unit onto the chassis.
- Install the T Loading Arm Unit so that the hole on T Loading Arm Unit is aligned with the hole on S Loading Arm Unit.
- Confirm that the holes on the S & T Loading Arm Unit are Through Holes with hole on chassis.

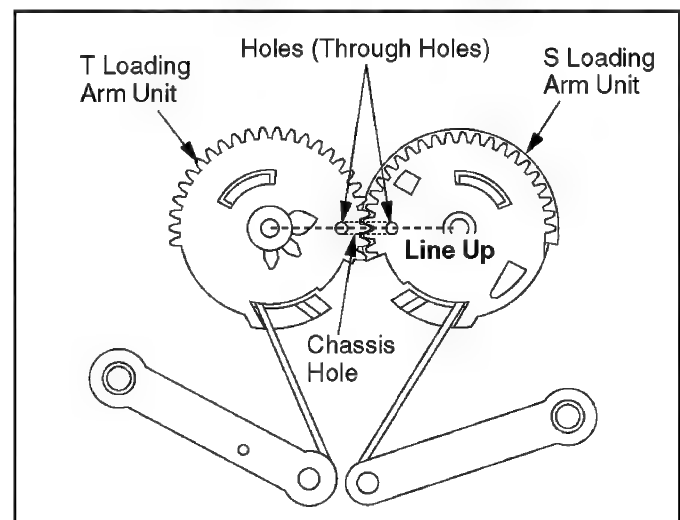


Fig. J7-2



## 6.2.10. T Brake Unit, Tension Control Arm Unit, T Reel Table, S Reel Table, and Tension Arm Unit

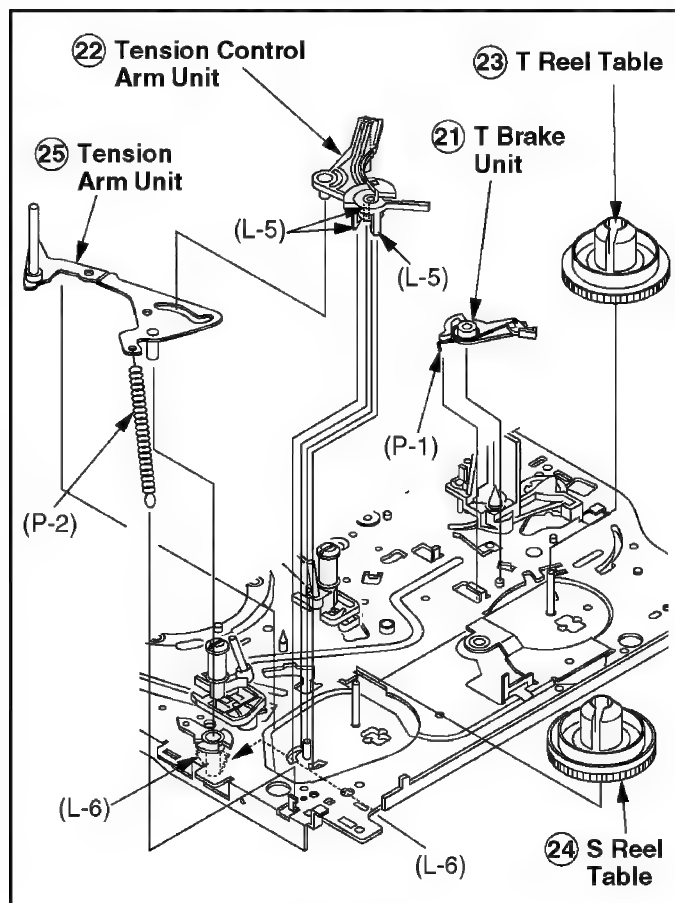


Fig. J8-1

## 6.2.11. Loading Post Base -T Unit and Loading Post Base -S Unit

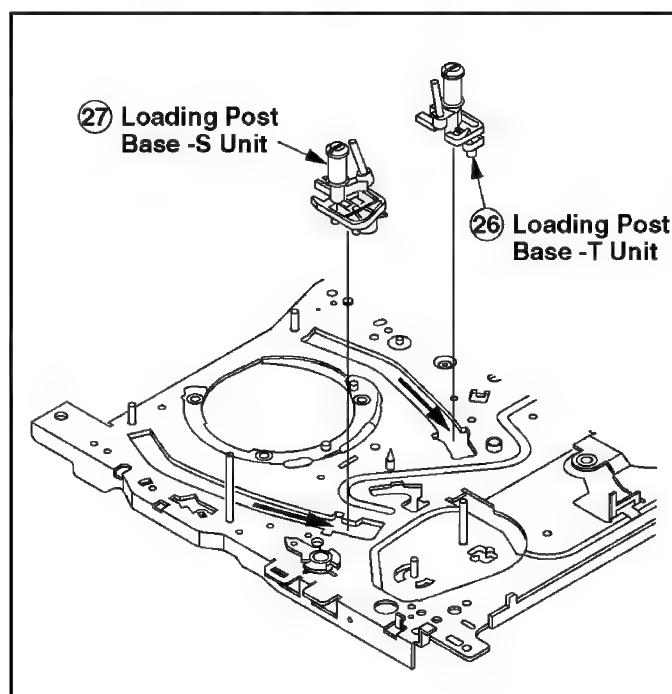


Fig. J9

### 6.2.10.1. Reassembly Notes

#### 1. How to distinguish between S Reel Table and T Reel Table

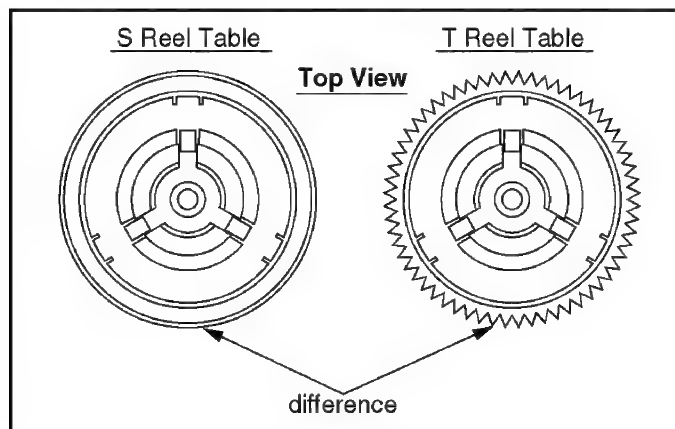


Fig. J8-2

## 6.2.12. Opener Piece, Drive Rack Arm, Pinch Arm Unit, P5 Arm Unit, and Intermediate Gear A

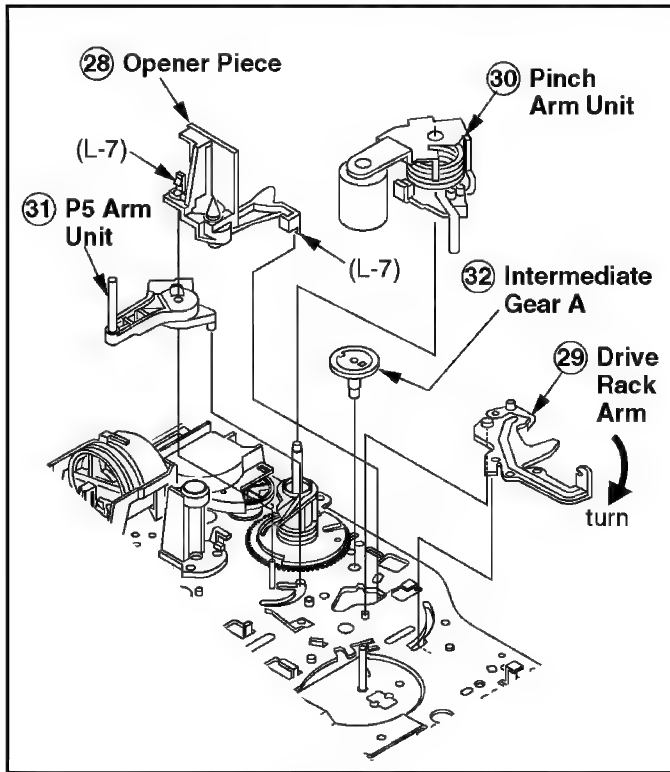


Fig. J10-1

### 2. Installation of Opener Piece

- Install the Opener Piece so that the slot of the Opener Piece is inserted to the Pin of Pinch Arm Unit

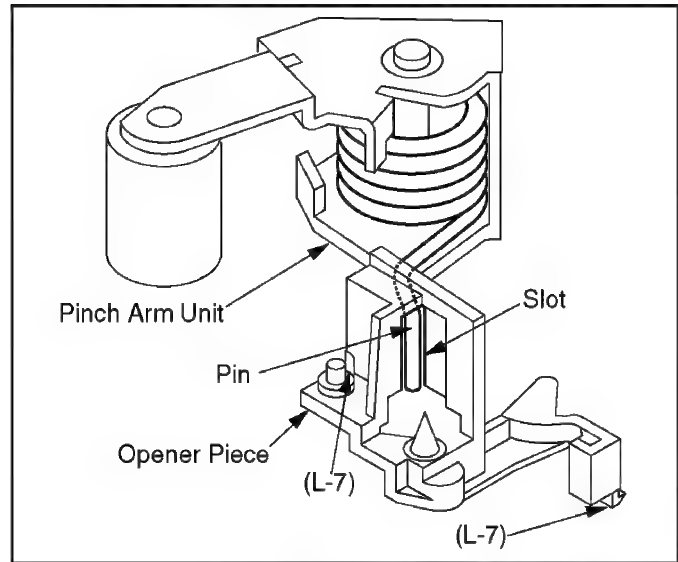


Fig. J10-3

### 6.2.12.1. Reassembly Notes

#### 1. Installation/Alignment of Intermediate Gear A, Lift Gear and P5 Arm Unit

- Rotate the Lift Gear so that Hole A on Lift Gear is a Through Hole with a hole on chassis.
- Install the Intermediate Gear A so that the hole on Intermediate Gear A is aligned with the hole on Lift Gear.
- Install the P5 Arm Unit so that it contacts with the tab of chassis.

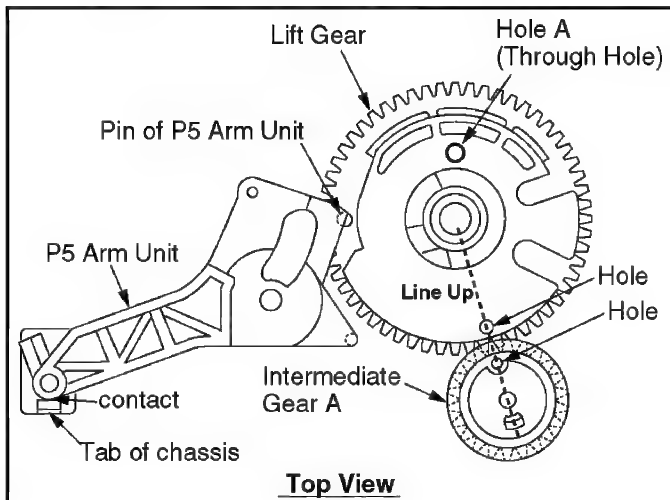


Fig. J10-2

### 6.2.13. Motor Block Unit, Audio Control Head Unit, Lift Gear, Capstan Holder Unit, Tension Arm Boss, and Cleaner Arm Unit

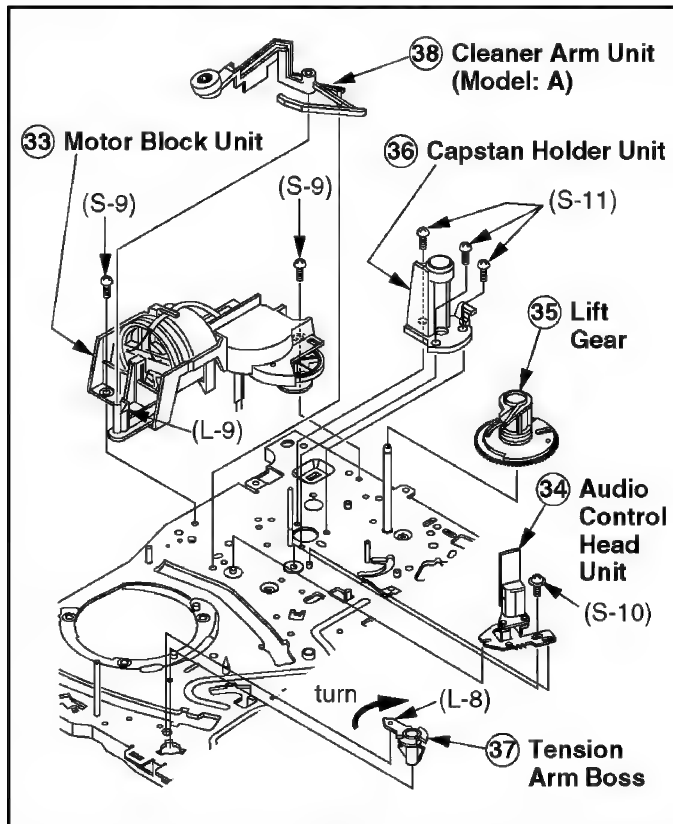


Fig. J11

## 6.3. CASSETTE UP ASS'Y SECTION

This chart indicates Step/Location No. of Parts to be serviced and prior steps to gain access items to be serviced when disassembling. When reassembling, perform the step(s) in the reverse order.

Step/Loc. No.	Prior Step(s)	Part	Fig. No.	Remove	Alignment/Adjustment
①		Top Plate	K1-1	(L-1), (L-2)	
②	1	Wiper Arm Unit	K1-1	2(L-3)	Gear Alignment
③	1,2	Holder Unit	K1-1	-	
④		Opener Lever	K2	2(L-4)	
⑤	1,2,3,4	Drive Rack Unit	K2	-	

↑ A
↑ B
↑ C
↑ D
↑ E
↑ F

### How to read chart shown above:

A: Order of Procedure steps.

When reassembling, perform steps(s) in reverse order.

These numbers are also used as the identification (location) No. of parts in Figures.

B: Steps to be completed prior to the current step.

C: Part to be removed or installed.

D: Fig. No. showing Procedure or Part Location.

E: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.

(S-1) = Screw (S-1), (L-1) = Locking Tab (L-1), (W-1) = Washer (W-1), (P-1) = Spring (P-1), (C-1) = Cut Washer (C-1)

F: Alignment/Adjustment which is required when installing or replacing each Parts.

### 6.3.1. Top Plate, Wiper Arm Unit, and Holder Unit

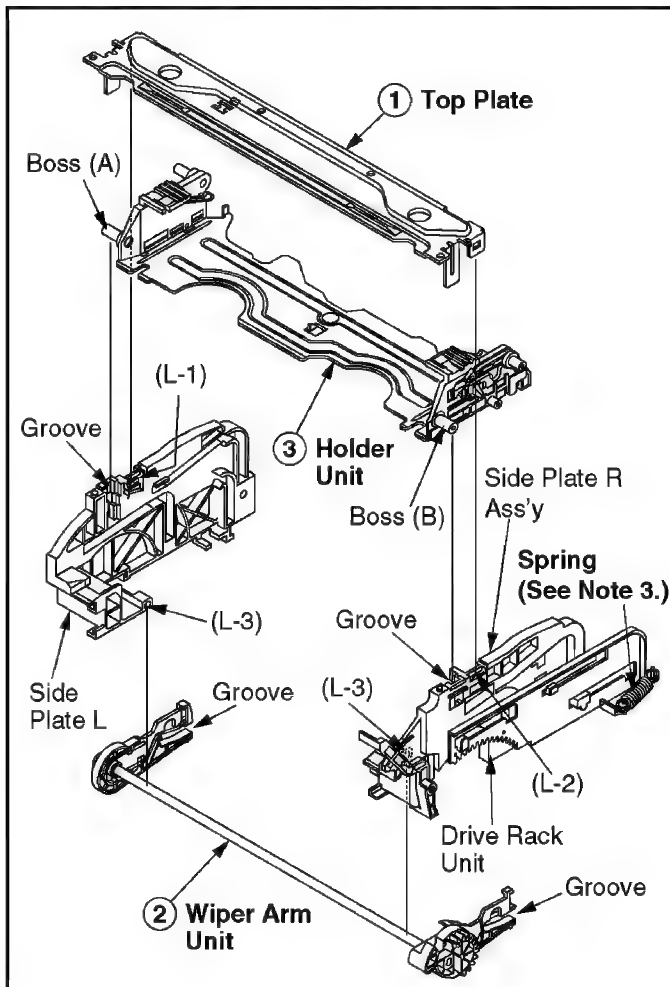


Fig. K1-1

### 6.3.1.1. Reassembly Notes

#### 1. Alignment of Wiper Arm Unit and Drive Rack Unit

- Slide the Drive Rack Unit to the far right as indicated by the arrow.
- Install the Wiper Arm Unit so that the hole on the Wiper Arm Unit is aligned with the hole on the Drive Rack Unit.

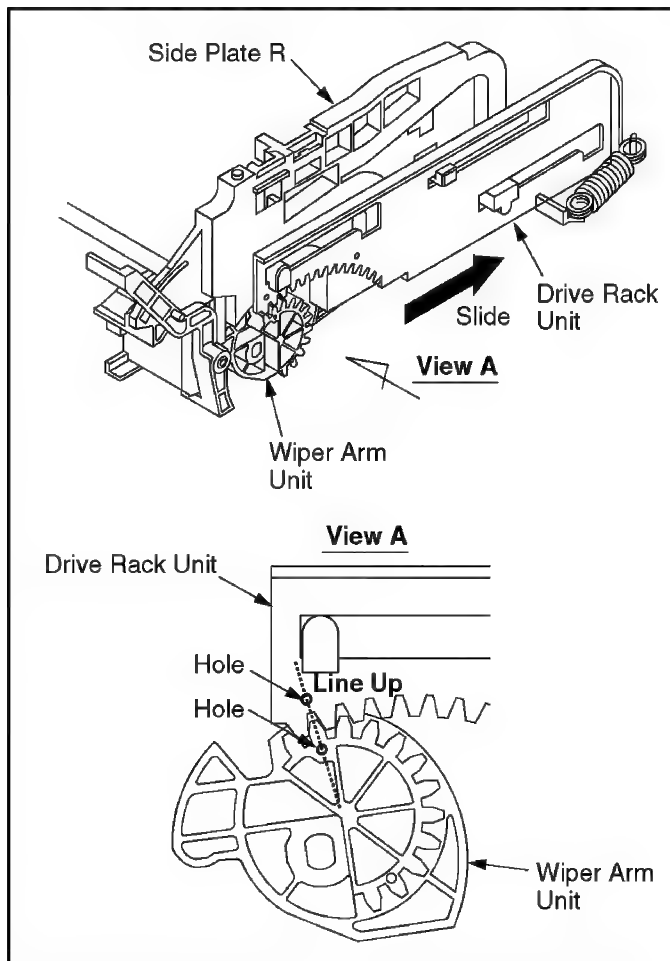


Fig. K1-2

#### 2. Installation of Holder Unit

- Turn the Wiper Arm Unit so that the grooves on each end are aligned with the each groove on Side Plate L and R.
- Insert Holder Unit boss (A) and (B) into the grooves as shown in Fig. K1-1.
- Finally, in the **EJECT** Position, confirm that the protrudence on the Wiper Arm Unit is aligned with the indentation on the Drive Rack Unit.

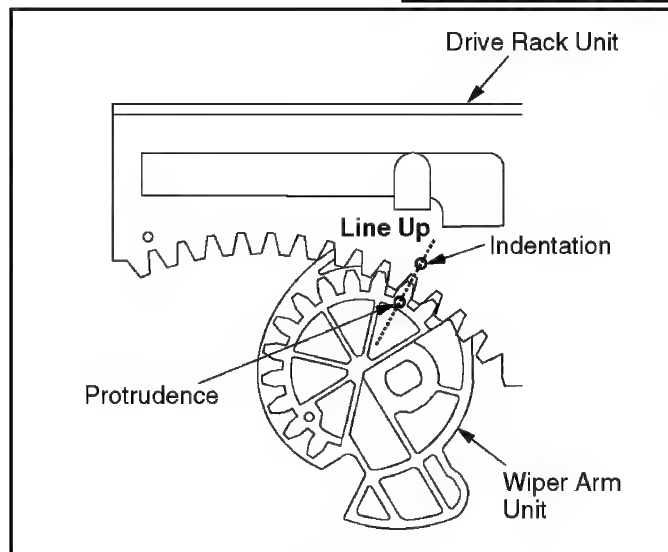


Fig. K1-3

- Make sure to hook the spring to the Drive Rack Arm of Mechanism chassis.

### 6.3.2. Opener Lever and Drive Rack Unit

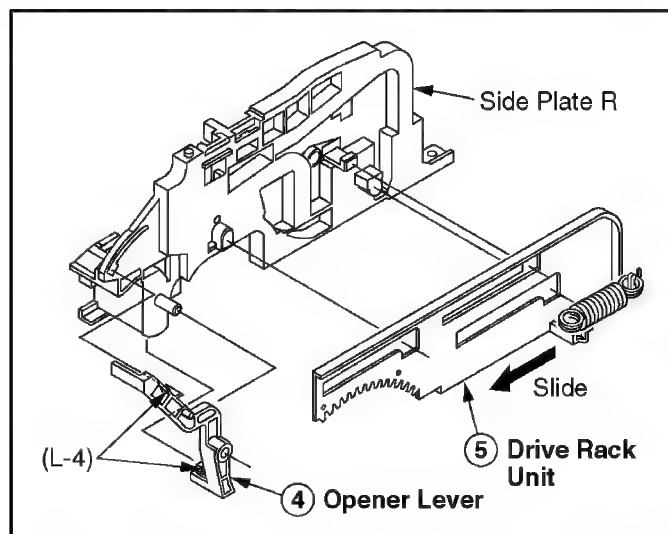
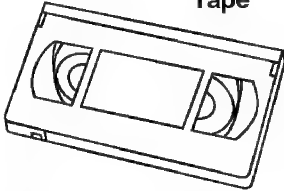
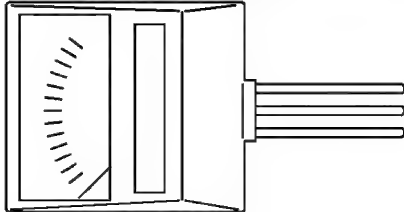
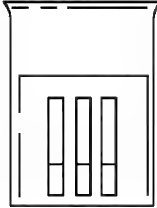
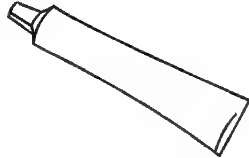





Fig. K2

## 7 ADJUSTMENT PROCEDURES

### 7.1. SERVICE FIXTURES AND TOOLS

<div>VFMS0003H6</div> <div>VHS Alignment Tape</div> <div></div> <div><div>Video</div><div>Audio</div><div>Color Bar &amp; Monoscope</div><div>6kHz(MONO)</div></div>	<div>Back Tension Meter</div> <div>(Made in USA., Purchase Locally)</div> <div></div>	<div>VFK27</div> <div>Head Cleaning Stick</div> <div></div>
<div>VFK1301</div> <div>Silicon Grease</div> <div></div>	<div>VFKS0081</div> <div>Grease</div> <div></div>	<div>VFK0329</div> <div>Post Adjustment Driver</div> <div></div>
<div>VFK0330</div> <div>H-Position Adjustment Driver</div> <div></div>		

## 7.2. MECHANICAL ADJUSTMENT

### 7.2.1. CLEANING PROCEDURE FOR THE UPPER CYLINDER UNIT

1. While slowly turning the Upper Cylinder Unit counterclockwise by hand, gently rub the Video Heads with a Head Cleaning Stick (VFK27) moistened with Ethanol.

When using a Cleaning Cassette, make sure to use "DRY" type only and be aware that excessive use can shorten head life.

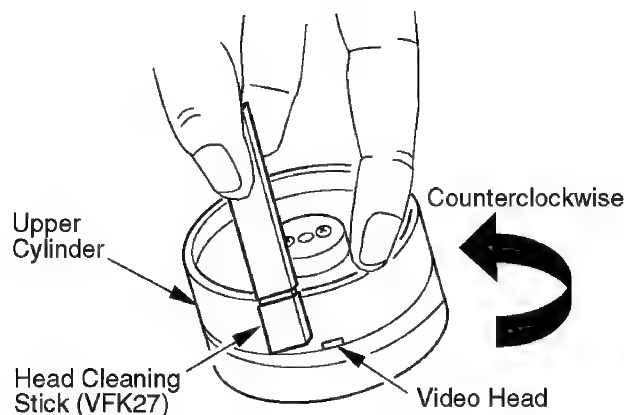


Fig. M1

#### Note:

1. Do not rub vertically or apply excess pressure to the Video Heads.  
Do not turn the Upper Cylinder Unit clockwise while cleaning.
2. After cleaning, use a Dry Head Cleaning Stick (VFK27) to remove any Ethanol remaining on the cylinder tape path. Otherwise, tape damage will occur.

### 7.2.2. ADJUSTMENT PROCEDURES

#### 7.2.2.1. BACK TENSION CONFIRMATION

Purpose:	To fine adjust the Back Tension so that the tape runs smoothly with a constant tension.
Symptom of Misadjustment:	<ol style="list-style-type: none"> <li>1) If the tape tension is less than the specified value, the tape cannot come into proper contact with the Video Heads, resulting in poor picture playback.</li> <li>2) If the tape tension is too high, the tape will soon be damaged.</li> </ol>
Equipment Required:	Back Tension Meter (Made in U.S.A., Purchase Locally) VHS Cassette Tape (120-Minute Tape)
Specification:	$20 \text{ gf} \pm 2.5 \text{ gf}$ $(0.196 \text{ N} \pm 0.025 \text{ N})$

1. Play back a T120 cassette tape from the beginning for approx. 10 to 20 seconds to stabilize tape movement.
2. Insert a Tension Meter into tape path and measure the back tension.

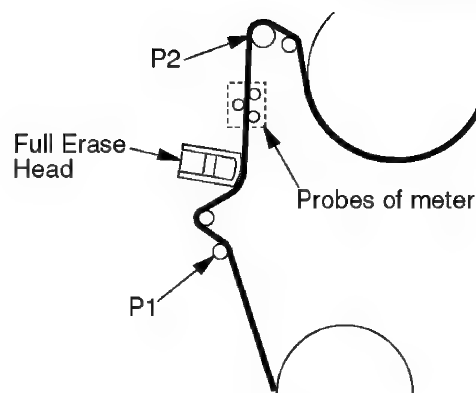


Fig. M2-1

3. If the reading is out of specification, make sure that there is no dust or foreign material between the Brake Pad of Tension Control Arm Unit and the S Reel Table.

After cleaning, the reading of tension measurement is still out of specification, replace the Tension Arm Unit and the Tension Control Arm Unit.

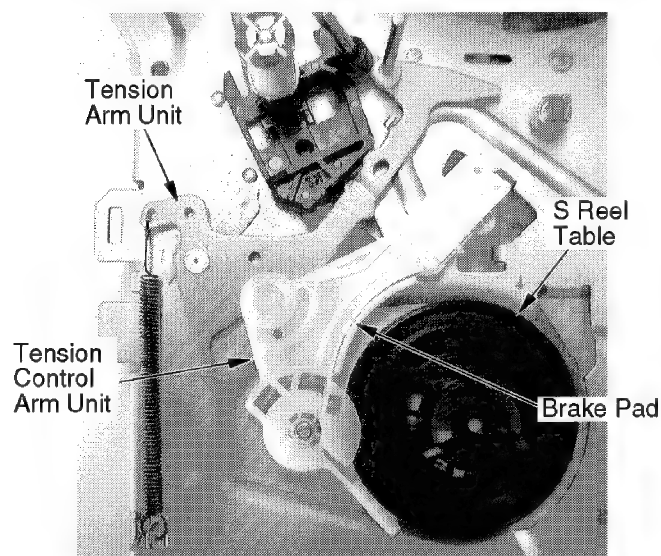


Fig. M2-2

#### Note:

1. Be sure that the three probes of the meter are all in solid contact with the tape, but not touching any other parts of the mechanism.
2. It is recommended that measurements should be repeated at least three (3) times because the tension meter is very sensitive to external vibrations.

### 7.2.2.2. MR HEAD GAP ADJUSTMENT

Purpose:	To properly pick up the FG Signal.
Symptom of Misadjustment:	If the FG Signal is not properly picked up, Servo Operation cannot be achieved.
Equipment Required:	Oscilloscope
Specification:	0.1 mm ~ 0.13 mm

1. Remove the VCR Chassis Unit and then place it upside down.
2. Remove the Main C.B.A.
3. Slightly loosen Screw (A). Then set the Screwdriver (Phillips Driver) into the Hole (A). Turn the screwdriver clockwise until the MR Head touches the rotor. Then turn it slightly counterclockwise to make the clearance as specified.
4. Tighten Screw (A).
5. Reinstall the Main C.B.A.

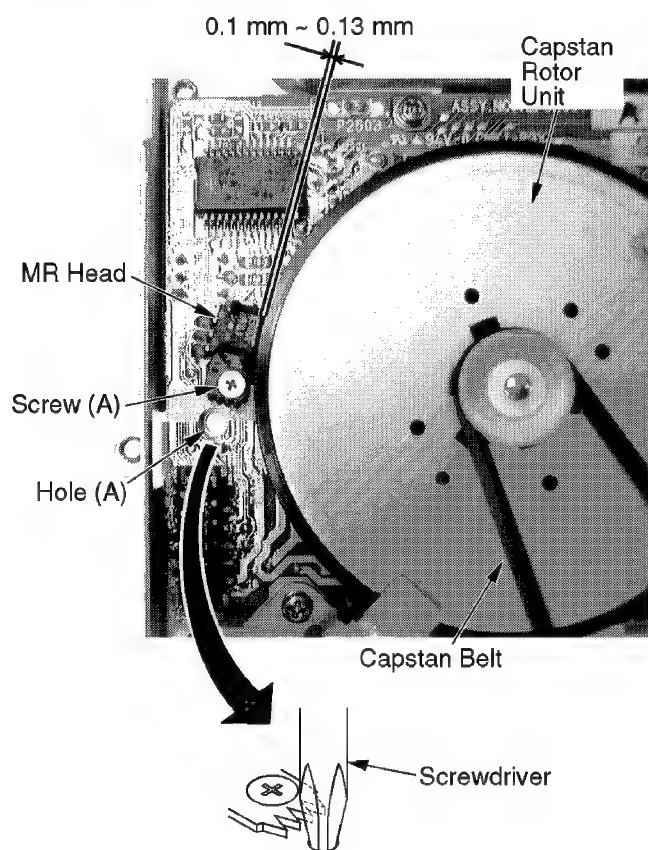


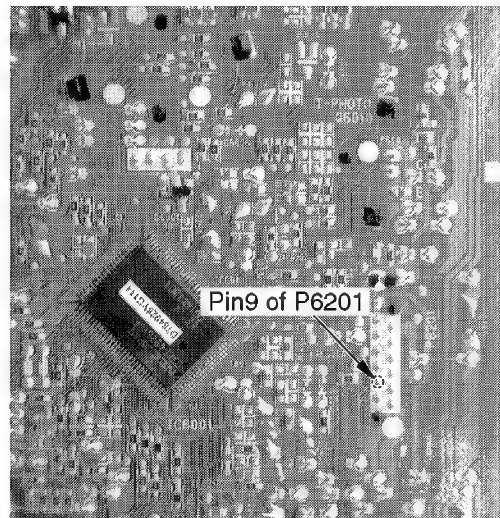
Fig. M3-1

#### Note:

Do not touch the outside circumference of the rotor surface with any tool and keep magnetic material away from the rotor magnet (especially metal particles).

#### Confirmation of Signal Level

1. Place the unit in Service Position (2). Refer to "SERVICE POSITION" in SERVICE NOTES.
2. Supply a Video Signal to the video input jack.
3. Insert a cassette tape and place the unit in SLP recording mode.
4. Connect the oscilloscope to Pin 9 of P6201 on the Main C.B.A. Confirm that the signal level is greater than 20 mV [P-P].



Main C.B.A. (foil side)

Fig. M3-2



### 7.2.2.3. TAPE INTERCHANGEABILITY ADJUSTMENT

#### Note:

To perform these adjustment/confirmation procedures, set the tracking to the neutral position.

Equipment Required: Dual Trace Oscilloscope  
VHS Alignment Tape (VFMS0003H6)  
Post Adjustment Driver (VFK0329)  
H-Position Adjustment Driver (VFK0330)

#### 7.2.2.3.1. ENVELOPE OUTPUT ADJUSTMENT

The height of the P2 and P3 Posts replacement part is preadjust at the factory.

Purpose: To achieve a satisfactory picture and secure precise tracking.

Symptom of Misadjustment: If the envelope is output poorly, much noise will appear in the picture. Then the tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control circuit.

Equipment Required: Post Adjustment Driver (VFK0329)

1. Place a jumper between TP6003 (Pin 5 of P6002) and +5V(TP6009) on the Main C.B.A. to defeat Auto Tracking.
2. Eject the tape and insert it again to access the Neutral Tracking position.
3. Play back the alignment tape.
4. Connect the oscilloscope to TP3002 on the Video Signal Process Section of the Main C.B.A. Use TP6205 as a trigger.
5. Confirm that the RF envelope is flat enough ( $V1/V\text{-max.}$  is 0.7 or more). If not, with Post Adjustment Driver, adjust P2 and P3 post height so that the envelope waveform becomes as flat ( $V1/V\text{-max.}$  is 0.7 or more) as possible (No envelope drop). If the envelope drop appears on the left-half of the waveform, adjust P2 post height. If the envelope drop appears on the right-half of the waveform, adjust P3 post height.

#### CAUTION:

Overtightening P2 and P3 posts may cause the threads to strip.

#### Note:

It will be possible to confirm Step 5 according to following steps.

- a. Press the Tracking Control Up or Down button on remote control. Make sure that the envelope waveform remains flat. If not, readjust P2 and/or P3 post heights.

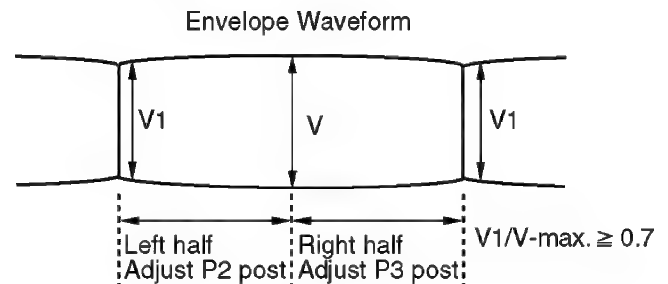


Fig. M4-1

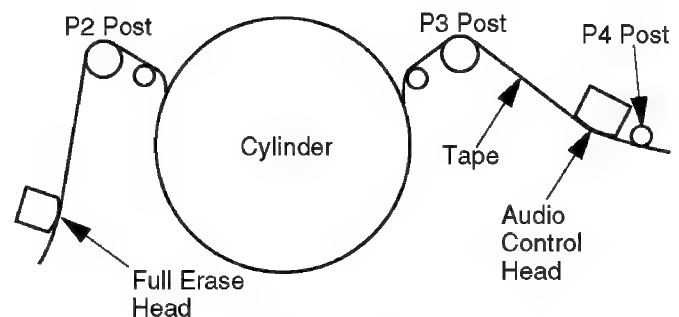


Fig. M4-2

6. After adjustment, confirm that the tape travels without curling at P2 and P3 posts.

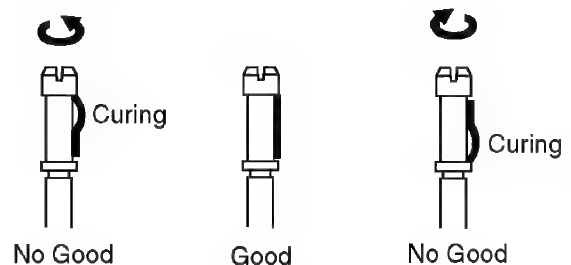


Fig. M4-3

7. Remove the jumper after completing the adjustment procedure.

### 7.2.2.3.2. AUDIO CONTROL HEAD TILT ADJUSTMENT

**Purpose:** To confirm that the tape runs smoothly. In particular, confirm that the tape properly picks up the Audio Signal at the upper part of the head and the Control Signal at the lower part of the head.

**Symptom of Misadjustment:** If the tilt of the Audio Control Head is poorly adjusted, the tape will eventually be damaged. An intermittent Blue screen may be seen in Playback.

1. Play back a T120 cassette tape and check that the tape travels smoothly between the upper and lower guides of the P4 post.
2. If necessary, adjust Black Screw (B) clockwise until the tape begins to curl at the lower edge of the P4 post. Then adjust the screw counterclockwise until the curling is eliminated.

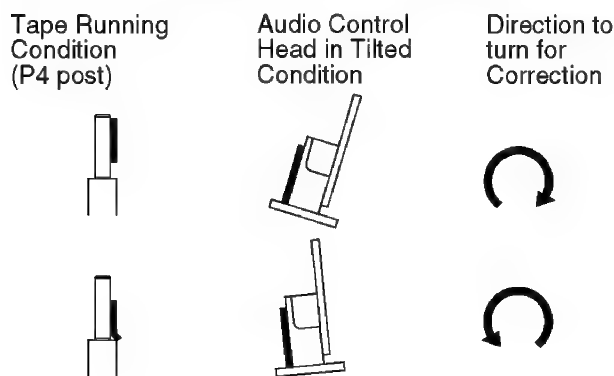


Fig. M5

### 7.2.2.3.3. AUDIO CONTROL HEAD HEIGHT ADJUSTMENT

The height of the Audio Control Head replacement part is preset at the factory.

**Purpose:** To be sure the tape runs properly along the Control Head.

**Symptom of Misadjustment:** If the control signal is not properly picked up, Servo Operation cannot be achieved. A Blue screen will be seen in Playback.

This confirmation is required when the Audio Control Head is replaced.

1. Play back a T120 cassette tape and check that the lower edge of the tape runs approximately 0.25 mm above the lower edge of the Audio Control Head.
2. If necessary, adjust Black Screws (A) and (B) clockwise to lower the tape or counterclockwise to raise.

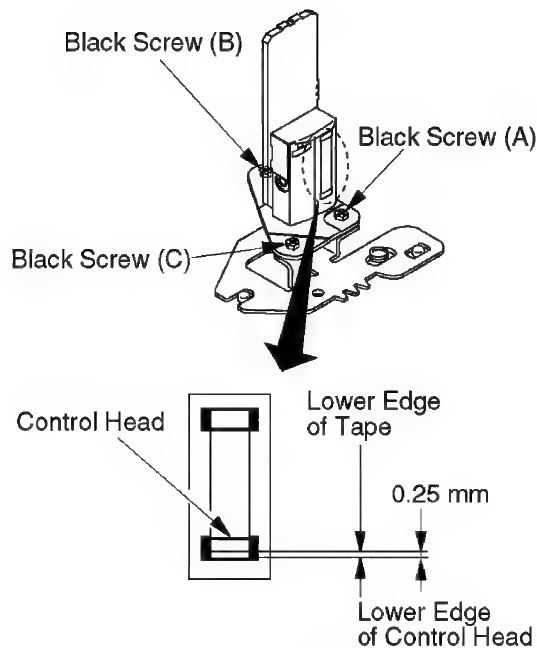


Fig. M6

### 7.2.2.3.4. AUDIO CONTROL HEAD AZIMUTH ADJUSTMENT

**Purpose:** To adjust the position and height of the Audio Control Head so that it meets the tape tracks properly.

**Symptom of Misadjustment:** If the position of the Audio Control Head is not properly adjusted, the Audio S/N Ratio is poor.

1. Connect the oscilloscope to the TP4002 on the Main C.B.A.
2. Play back the 6 kHz Monaural Audio portion of the alignment tape.
3. Adjust Black Screw (C) on the Audio Control Head base so that the output level is at maximum.

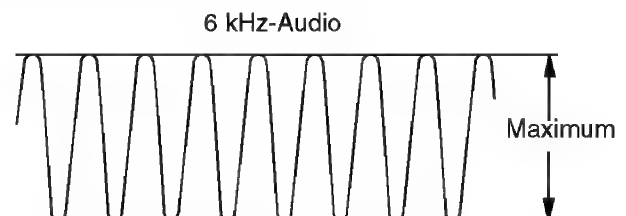


Fig. M7

4. Confirm the height of the Audio Control Head is proper. If not, readjust Black Screws (A) and (B).

### 7.2.2.3.5. AUDIO CONTROL HEAD HORIZONTAL POSITION ADJUSTMENT

**Purpose:** To adjust the Horizontal Position of the Audio Control Head.

**Symptom of Misadjustment:** If the Horizontal Position of the Audio Control Head is not properly adjusted, a maximum envelope cannot be obtained at the Neutral Position of the Tracking Control Circuit.

1. Place a jumper between TP6003 (Pin 5 of P6002) and +5V(TP6009) on the Main C.B.A. to defeat Auto Tracking.
2. Eject the tape and insert it again to access the Neutral Tracking position.
3. Play back the alignment tape.
4. Connect the oscilloscope to TP3002 on the Video Signal Process Section of the Main C.B.A. Use TP6205 as a trigger.
5. Loosen the Black Screw (D) and tighten it slightly. Set the H-Position Adjustment Driver into the Hole (A). Then slowly turn the fixture either clockwise or counterclockwise so that the envelope is at maximum.

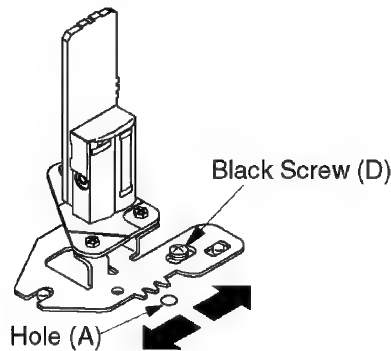


Fig. M8

6. Tighten Black Screw (D).
7. Remove the jumper between TP6003 (Pin 5 of P6002) and +5V(TP6009).

**Note:**

Old type of H-Position Adjustment Driver (VFK0136) can be used for this adjustment.

## 7.3. ELECTRICAL ADJUSTMENT

### 7.3.1. TEST EQUIPMENT

To do all of these electrical adjustments, the following equipment is required.

1. Dual-Trace Oscilloscope  
Voltage Range: 0.001 V to 50 V/Div.  
Frequency Range: DC to 50 MHz  
Probes: 10:1, 1:1
2. NTSC Video Pattern Generator
3. DVM (Digital Volt Meter)
4. Plastic Tip Driver and Non-Metal Driver
5. Isolation Transformer (Variable)
6. VHS Alignment Tape (VFMS0003H6)
7. Degaussing Coil
8. White Pattern Generator

### 7.3.2. HOW TO READ THE ADJUSTMENT PROCEDURES

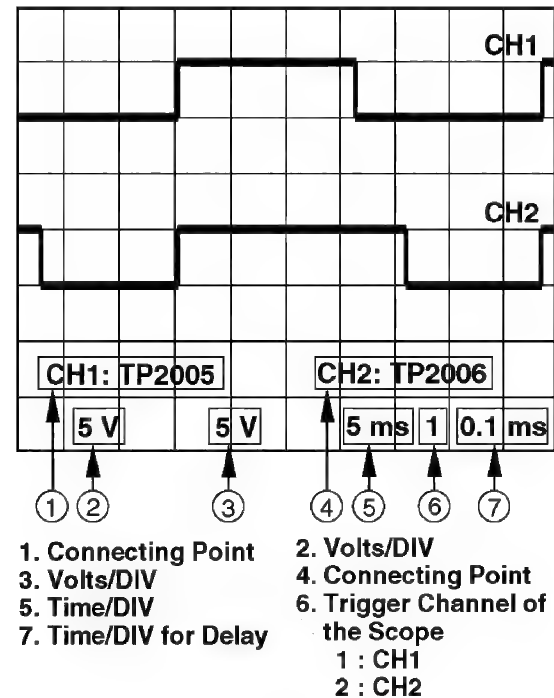


Fig. E1

### 7.3.3. TV OUTPUT VOLTAGE CONTROL ADJUSTMENT

**Note:**

Perform TV Output voltage control adjustment before TV PWM duty control adjustment.

**Purpose:** To set the proper DC output voltage for TV circuit.

**Symptom of Misadjustment:** The picture size and picture brightness will be abnormal.

**Test Point :** **TP503 (DC+115 V) (TV Main C.B.A.),**  
**TP504 (GND) (TV Main C.B.A.)**

**Adjustment :** **R1112 (Sub Power C.B.A.)**

**Specification :** **+115 V $\pm$ 0.3 VDC**

**Mode :** STOP

**Equipment :** DVM (Digital Volt Meter)

1. Apply AC120 V to AC cord of the unit and press POWER button on the Main C.B.A.
2. Connect the DVM to TP503(+) and TP504(-) on the TV Main C.B.A.
3. Adjust R1112 (DC+115 V) on the Sub Power C.B.A. so that the voltage is +115 V $\pm$ 0.3 VDC.

### 7.3.4. VCR OUTPUT VOLTAGE CONTROL ADJUSTMENT

**Note:**

Perform VCR output voltage control adjustment before VCR PWM duty control adjustment.

**Purpose:** To set the proper DC output voltage for VCR circuit.

**Symptom of Misadjustment:** The unit is powered off 5 seconds from the moment it is powered on.

**Test Point :** **TP1201 (DC+14 V) (Main C.B.A.)**

**Adjustment :** **R1115 (Sub Power C.B.A.)**

**Specification :** **+14 V $\pm$ 0.2 VDC**

**Mode :** STOP

**Equipment :** DVM (Digital Volt Meter)

1. Apply AC120 V to AC cord of the unit and press POWER button on the Main C.B.A.
2. Connect the DVM to TP1201(+) and GND(-) on the Main C.B.A.
3. Adjust R1115 (DC+14 V) on the Sub Power C.B.A. so that the voltage is +14 V $\pm$ 0.2 VDC.

### 7.3.5. TV PWM (PULSE WIDTH MODULATION) DUTY CONTROL ADJUSTMENT

**Purpose:** To set the optimum PWM duty control for TV output voltage circuit.

**Symptom of Misadjustment:** The picture size will be abnormal or TV circuit will be powered off.

**Test Point :** **TP1103, TP1104 (Sub Power C.B.A.)**

**Adjustment :** **R1128 (Sub Power C.B.A.)**

**Specification :** **Refer to descriptions below.**

**Mode :** STOP

**Equipment :** Oscilloscope

1. Connect TP1103 to TP1104 through a resistor (100  $\Omega$ ).  
Then, connect oscilloscope to TP1103(+) and TP1104(-) on the Sub Power C.B.A.
2. Apply AC120 V to AC cord of the unit and press POWER button on the Main C.B.A.
3. Set the oscilloscope so that the "A" becomes 10 scales on the oscilloscope as shown in Fig. E2.
4. Turn R1128 on the Sub Power C.B.A. fully counterclockwise.
5. While slowly turning R1128 on the Sub Power C.B.A., adjust to the first point that "B" becomes 8.1 scale on the oscilloscope as shown in Fig. E2.
6. After this adjustment is complete, power off the unit first.  
And then, disconnect a resistor (100  $\Omega$ ).

#### Caution:

**Do not connect or disconnect a resistor (100  $\Omega$ ) while the unit is powered on. If not, the unit may be damaged.**

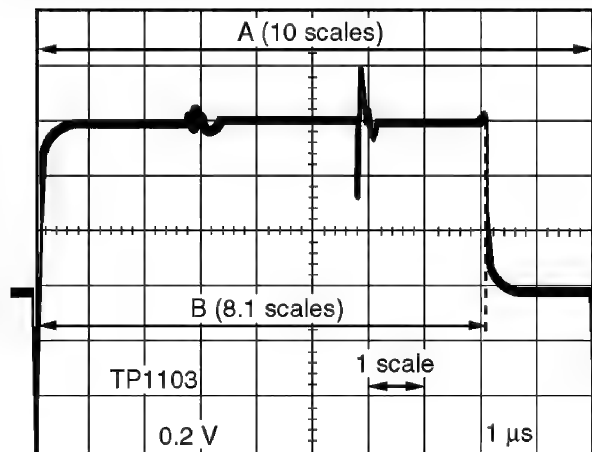


Fig. E2

### 7.3.6. VCR PWM (PULSE WIDTH MODULATION) DUTY CONTROL ADJUSTMENT

#### Note:

In this adjustment, the unit is powered off 5 seconds from the moment it is powered on by connecting a resistor (100  $\Omega$ ) between TP1102 and TP1104 on the Sub Power C.B.A. This is due to the function of the unit's Microprocessor (IC6001) protect circuit. Therefore, to perform this adjustment, the unit must repeatedly be powered back on. (Pressing the power button twice will power the unit back on.)

**Purpose:** To set the optimum PWM duty control for VCR output voltage circuit.

**Symptom of Misadjustment:** The unit will be powered off or the unit will not work correctly.

**Test Point :** **TP1102, TP1104 (Sub Power C.B.A.)**

**Adjustment :** **R1120 (Sub Power C.B.A.)**

**Specification :** **Refer to descriptions below.**

**Mode :** STOP

**Equipment :** Oscilloscope

1. Connect TP1102 and TP1104 through a resistor (100  $\Omega$ ).  
Then, connect oscilloscope to TP1102(+) and TP1104(-) on the Sub Power C.B.A.
2. Apply AC120 V to AC cord of the unit and press POWER button on the Main C.B.A.
3. Set the oscilloscope so that the "C" becomes 10 scales on the oscilloscope as shown in Fig. E3.
4. Turn R1120 on the Sub Power C.B.A. fully counterclockwise.
5. While slowly turning R1120 on the Sub Power C.B.A., adjust to the first point that "D" becomes 8.2 scale on the oscilloscope as shown in Fig. E3.
6. After this adjustment is complete, power off the unit first.  
And then, disconnect a resistor (100  $\Omega$ ).

#### Caution:

**Do not connect or disconnect a resistor (100  $\Omega$ ) while the unit is powered on. If not, the unit may be damaged.**

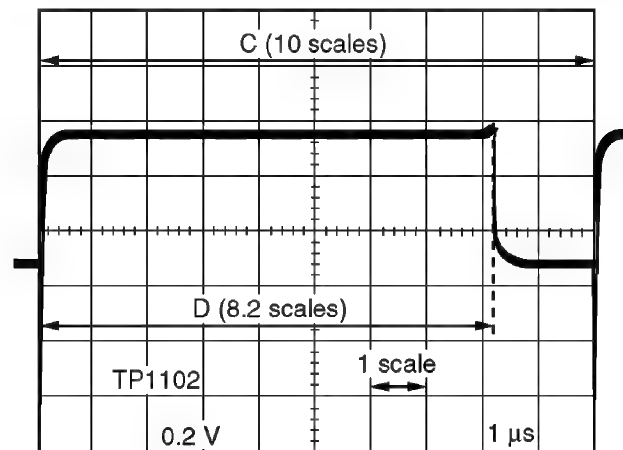


Fig. E3

### 7.3.7. EVR (Electronic Variable Register) ADJUSTMENT WITH THE REMOTE CONTROL

This unit has electronic technology using I2C Bus concept. The following control functions are adjusted by using "On Screen Displays" and the remote control instead of adjusting mechanical controls (VR).

Control functions	※2 Address	Range	Default
<b>SUB COLOR</b>	00	C0 - FF, 00 - 3F	00
<b>SUB TINT</b>	01	E0 - FF, 00 - 1F	00
<b>SUB BRIGHT</b>	02	C0 - FF, 00 - 3F	F0
<b>CONTRAST</b>	03	C1 - FF, 00	00
<b>SUB SHARPNESS</b>	04	E0 - FF, 00 - 1F	00
<b>R CUT -OFF</b>	05	00 - 7F	1E
<b>G CUT -OFF</b>	06	00 - FD	3C
<b>B CUT -OFF</b>	07	00 - FD	3C
<b>G DRIVE</b>	08	00 - 7F	40
<b>B DRIVE</b>	09	00 - 7F	40
<b>SUB CONTRAST</b>	0A	00 - 0F	06
<b>H CENTER</b>	0B	00 - 0F	08
<b>SUB V</b>	0C	00 - 03	00
<b>V SIZE</b>	0D	00 - 7F	40
<b>V POSITION</b>	0E	00 - 7F	40
<b>ANR CTL</b>	10	00 - EF	85
<b>PICTURE CTL</b>	11	00 - EF	82
<b>VV COLOR</b> ※1	12	C0 - FF, 00 - 3F	00
<b>VV TINT</b> ※1	13	E0 - FF, 00 - 1F	00
<b>VV SHARPNESS</b>	14	E0 - FF, 00 - 1F	F8
<b>PG SHIFTER</b>	15	01 - FD	80
<b>FM ANT</b> ※3	18	00-01	00/01

Bold-faced letters ➡ Control functions which need to be adjusted.

Note:

- ※1 After "SUB COLOR/SUB TINT ADJUSTMENT" is complete, perform as follows.
  - Write the same value of SUB COLOR (Address 00) to VV COLOR (Address 12).
  - Write the same value of SUB TINT (Address 01) to VV TINT (Address 13).
- ※2 Address is not displayed on the TV screen. Other Addresses except above are not used.
- ※3 For models PV-C911, PV-C921, and PV-C931W, set the Default value of FM ANT to "00." For model PV-C921-K, set the Default value of FM ANT to "01."

#### 7.3.7.1. EVR ADJUSTMENT ITEM

The following Items need to be adjusted for EVR adjustment.

- PG SHIFTER ADJUSTMENT
- SUB CONTRAST ADJUSTMENT
- CUT OFF, DRIVE ADJUSTMENT
- SUB COLOR/SUB TINT ADJUSTMENT
- V. HEIGHT/H. POSITION ADJUSTMENT
- WHITE BALANCE ADJUSTMENT
- SUB BRIGHTNESS ADJUSTMENT

#### 7.3.7.2. How to enter EVR adjustment mode

Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds with no cassette inserted.

The adjustment overlay will appear.

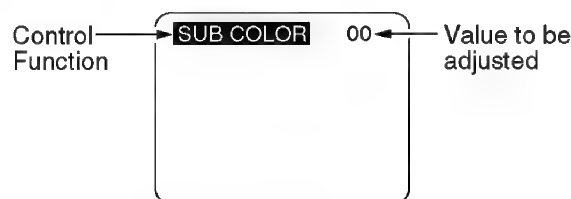


Fig. E4-1

#### 7.3.7.2.1. How to adjust:

1. Press CH UP/DOWN key on the remote control to select control function to be adjusted.

**Important Note:**

**Make a note of the original value of the controls before modifying in case the wrong control is adjusted.**

2. Press VOL UP/DOWN key on the remote control so that the shaded area moves to the value.

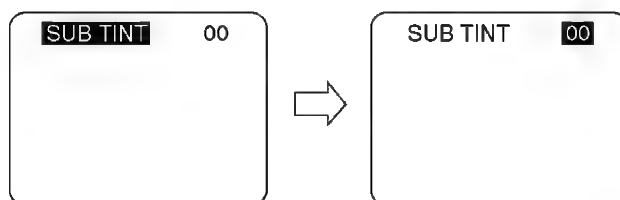


Fig. E4-2

3. Press CH UP/DOWN key on the remote control to adjust the value of the selected control.

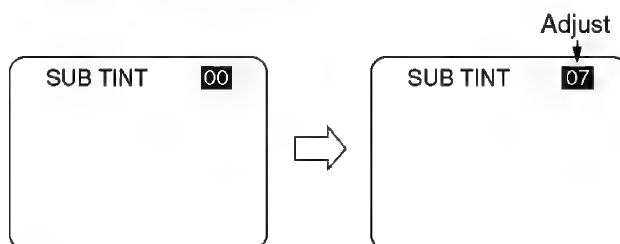


Fig. E4-3

**Note:**

You can select a desired channel by using the numbered keys on the remote control in EVR adjustment mode.

4. Press VOL UP/DOWN key on the remote control so that the shaded area moves to the control function.

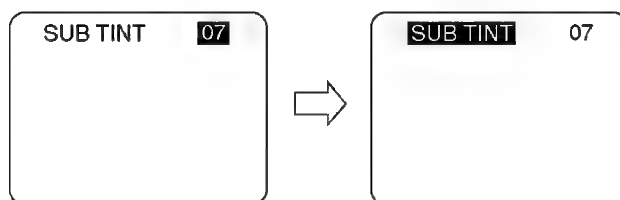


Fig. E4-4

5. Press CH UP/DOWN key on the remote control to select a control function for the next adjustment if necessary.

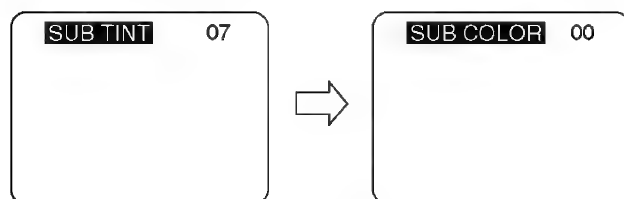


Fig. E4-5

### 7.3.7.2.2. How to release from EVR Adjustment Mode:

Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds again or press the POWER button OFF. The adjusted value will be written to Memory IC (IC6004).

### 7.3.7.3. HOW TO ENTER EVR PG SHIFTER ADJUSTMENT MODE

1. Enter EVR adjustment mode.
2. Insert the VHS Alignment Tape and playback in SP mode.  
The adjustment overlay will appear.

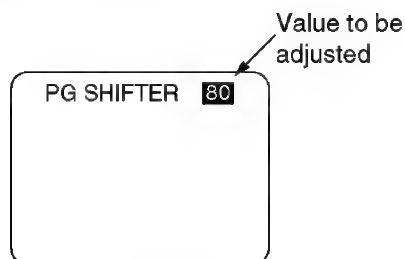


Fig. E4-6

#### 7.3.7.3.1. How to adjust:

Press CH UP/DOWN key on the remote control to adjust the value.

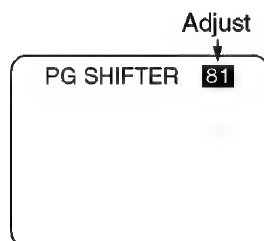


Fig. E4-7

### 7.3.7.3.2. How to release from EVR PG Shifter Adjustment Mode:

Press STOP button or press the POWER button OFF.  
The adjusted value will be written to Memory IC (IC6004).

### 7.3.7.4. HOW TO ENTER SERVICE MODE

1. Enter EVR adjustment mode.
2. Press DISPLAY key on the remote control for collapse scan.

#### Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value for adjustments you will proceed.

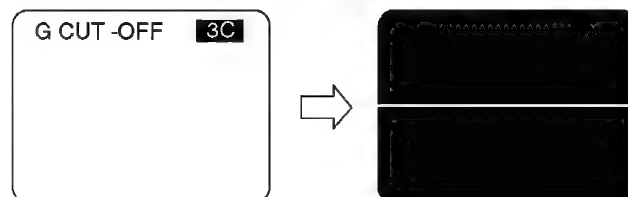


Fig. E4-8

### 7.3.7.4.1. How to release from Service Mode:

Press DISPLAY key again on the remote control.

### 7.3.8. PG SHIFTER ADJUSTMENT

**Purpose:** Determine the Video Head Switching Point during Playback.

**Symptom of Misadjustment:** May cause Head Switching Noise and/or Vertical Jitter.

**Test Point :** **TP3001 (Main C.B.A.),**  
**TP6205 (Main C.B.A.)**

**Adjustment :** **PG SHIFTER (EVR)**

**Specification :**  **$T = 6 H \pm 1 H$  ( $0.38 ms \pm 0.06 ms$ )**

**INPUT :** -----

**Mode :** SP Playback

**Equipment :** Oscilloscope,  
VHS Alignment Tape (VFMS0003H6)

1. Enter EVR PG Shifter Adjustment mode, refer to "HOW TO ENTER EVR PG SHIFTER ADJUSTMENT MODE."
2. Connect the channel-1 scope probe to TP3001 and the channel-2 scope probe to TP6205. Used TP6205 as a trigger.
3. Adjust value so that the trailing edge of the head switching pulse is placed  $6 H \pm 1 H$  ( $0.38 ms \pm 0.06 ms$ ) before the start of the vertical sync pulse.
4. Release EVR PG Shifter Adjustment Mode.

The adjusted value will be written to Memory IC (IC6004).

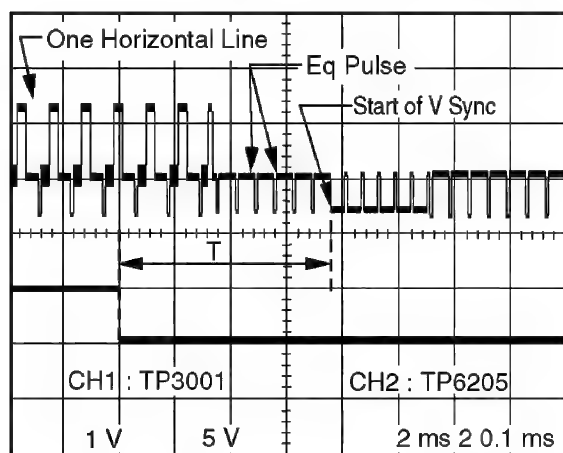


Fig. E5

### 7.3.9. SUB CONTRAST ADJUSTMENT

**Purpose:** To set the optimum sub contrast level.

**Symptom of Misadjustment:** The picture is too dark or too light.

**Test Point :** **Pin 5 of P6001 (Main C.B.A.) or TP49 (CRT C.B.A.)**

**Adjustment :** **SUB CONTRAST (EVR)**

**Specification :**  **$2.25 V[p-p] \pm 0.1 V[p-p]$**

**INPUT :** Crosshatch Pattern Signal 1 V[p-p]  
(75  $\Omega$  terminated)

**Mode :** STOP

**Equipment :** Oscilloscope,  
NTSC Video Pattern Generator

1. Supply a Crosshatch Pattern Signal to the Video Input Jack.
2. Connect the Oscilloscope to Pin 5 of P6001 on the Main C.B.A. or TP49 on the CRT C.B.A.
3. Select SUB BRIGHT in EVR adjustment mode. Then, after making a note of the original value, adjust to the (D0).
4. Select SUB CONTRAST in EVR adjustment mode and adjust so that the level A is  $2.25 V[p-p] \pm 0.1 V[p-p]$ .
5. Select SUB BRIGHT in EVR adjustment mode and reset to the original value.

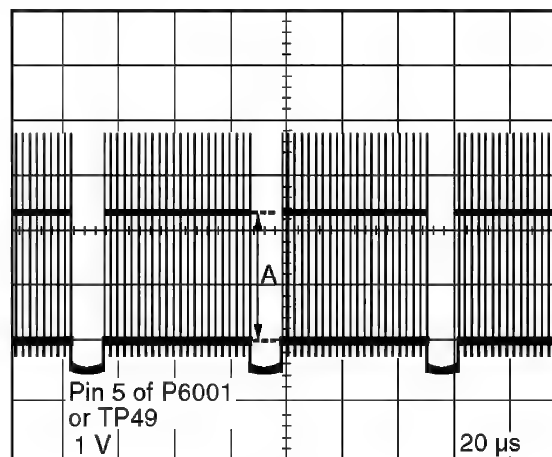


Fig. E6



### 7.3.10. FOCUS, SCREEN, CUT OFF, DRIVE ADJUSTMENT

**Purpose:** To set the optimum Focus and Screen.  
**Symptom of Misadjustment:** The picture is out of Focus and there will be an improper screen color mix.  
**Test Point :** TP50 (CRT C.B.A.)  
**Adjustment :** FOCUS CONTROL (Flyback Transformer),

SCREEN CONTROL (Flyback Transformer),

SUB BRIGHT (EVR),

B DRIVE (EVR),

R DRIVE (EVR),

B CUT -OFF (EVR),

G CUT -OFF (EVR),

R CUT -OFF (EVR)

**Specification :** Refer to descriptions below.

**INPUT :** Video Input Jack,

Monoscope Pattern Signal

**Mode :** STOP

**Equipment :** Oscilloscope,

NTSC Video Pattern Generator

1. Supply a Monoscope Pattern Signal to the Video Input Jack.
2. Connect the Oscilloscope to TP50 on the CRT C.B.A.  
(Use TP47 for GND.)
3. Select SUB BRIGHT and move the shaded area to the value in EVR adjustment mode.
4. Adjust the FOCUS CONTROL on the Flyback Transformer so that the center of picture is the sharpest.
5. Turn the SCREEN CONTROL on the Flyback Transformer fully counterclockwise.
6. Press DISPLAY key (Service Switch) on the remote control for collapse scan. (Refer to HOW TO ENTER SERVICE MODE.)
7. Adjust SUB BRIGHT in EVR adjustment mode so that the level A is 115 VDC $\pm$ 5 VDC.

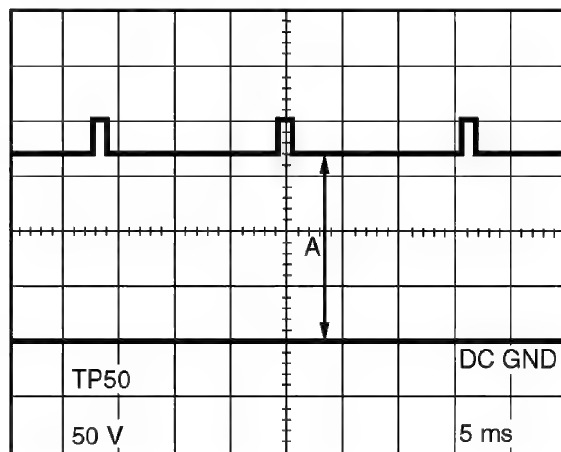


Fig. E7

8. Turn the SCREEN CONTROL on the Flyback Transformer clockwise carefully and stop at the point where any color is first observed.
9. In EVR adjustment mode, select the two colors not

observed in step 8 from the following control functions (B CUT -OFF, G CUT -OFF, or R CUT -OFF) and adjust so that the horizontal line becomes white.

For example, if the horizontal line appeared red in step 8, select and adjust the B CUT -OFF and G CUT -OFF.

10. Press DISPLAY key on the remote control again to return for full frame scan.
11. Select SUB BRIGHT in EVR adjustment mode and adjust so that the picture has adequate brightness.
12. Select G DRIVE and B DRIVE in EVR adjustment mode and adjust so that the entire screen is white.

#### Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value.

### 7.3.11. SUB COLOR/SUB TINT ADJUSTMENT

**Purpose:** To set the standard color phase.  
**Symptom of Misadjustment:** Color phase will be shifted.  
**Test Point :** Pin 5 of P6001 (Main C.B.A.) or TP49 (CRT C.B.A.)  
**Adjustment :** SUB COLOR (EVR), SUB TINT (EVR)  
**Specification :**  $C = 1.0 \text{ V[p-p]} \pm 0.15 \text{ V[p-p]}$   
**INPUT :** Video Input Jack,  
 Rainbow Color Bar  
**Mode :** STOP  
**Equipment :** Oscilloscope,  
 NTSC Video Pattern Generator

**Note:**

After "SUB COLOR/SUB TINT ADJUSTMENT" is complete, perform as follows.

- Write the same value of SUB COLOR (Address 00) to VV COLOR (Address 12).
- Write the same value of SUB TINT (Address 01) to VV TINT (Address 13).

1. Supply the Rainbow Color Bar signal to Video Input Jack.
2. Select SUB BRIGHT in EVR adjustment mode. Then, after making a note of the original value, adjust to the minimum (C0).
3. Connect the Oscilloscope to Pin 5 of P6001 on the Main C.B.A. or TP49 on the CRT C.B.A.
4. Select SUB TINT in EVR adjustment mode and adjust so that level A and B should be equal in amplitude.

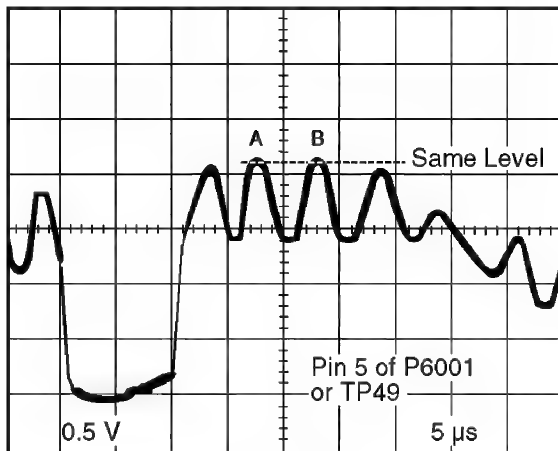


Fig. E8-1

5. Select SUB COLOR in EVR adjustment mode and adjust so that the level C is  $1.0 \text{ V[p-p]} \pm 0.15 \text{ V[p-p]}$ .

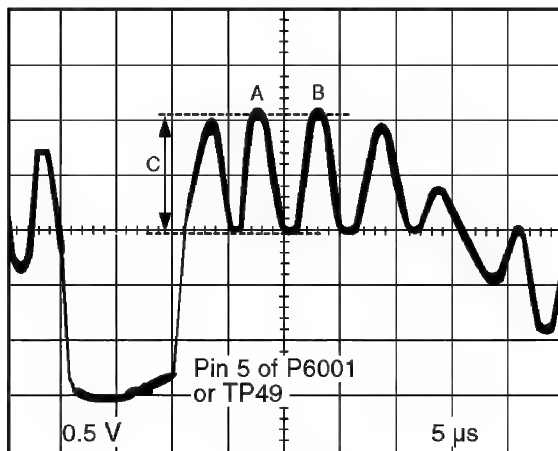


Fig. E8-2

6. Select SUB BRIGHT in EVR adjustment mode and reset to the original value.

### 7.3.12. PURITY ADJUSTMENT

Purpose:	To set the uniform white over the whole screen.
Symptom of Misadjustment:	The white screen will vary from area to area.
Test Point :	-----
Adjustment :	<b>Pair of 4-Pole Convergence Magnet Rings,</b> <b>Pair of 6-Pole Convergence Magnet Rings,</b> <b>Pair of Purity Magnet Rings,</b> <b>Deflection Yoke (CRT Unit),</b> <b>G CUT -OFF (EVR)</b>
Specification :	<b>Refer to descriptions below.</b>
INPUT :	Video Input Jack, Crosshatch Pattern Signal, White Pattern Signal
Mode :	STOP
Equipment :	Degaussing Coil, NTSC Video Pattern Generator, White Pattern Generator

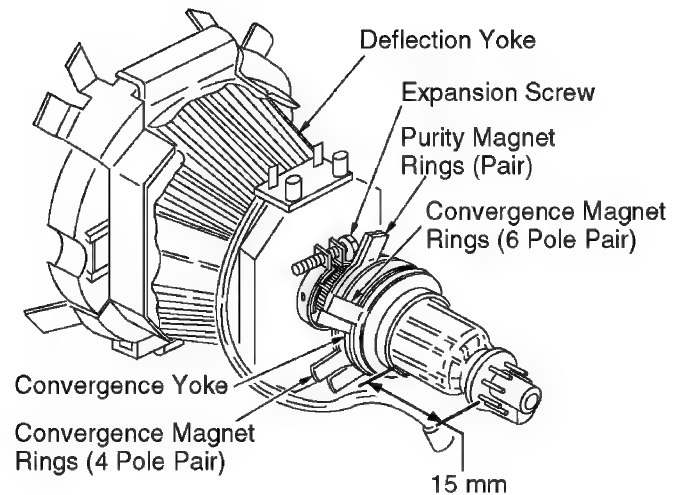


Fig. E9

1. Remove the wedges from the CRT.
2. Slide the Deflection Yoke forward to the end of the CRT neck.  
Set the Convergence Yoke as specified.
3. Power the unit "ON" and degauss the CRT by the Degaussing Coil.
4. Supply the Crosshatch Pattern Signal to Video Input Jack.
5. Turn the pair of 4-Pole Convergence Magnet Rings so that B and R at the center of CRT overlap each other.
6. Turn the pair of 6-Pole Convergence Magnet Rings so that B and R which overlapped each other in Step 5 overlap G.
7. Supply a White Pattern Signal to Video Input Jack.
8. Select G CUT -OFF in EVR adjustment mode and adjust it to become to the minimum level. Turn the Pair of Purity Magnet Rings so that the distorted color areas are approximately across from each other.  
Slide the Deflection Yoke back slightly (without rotating it) until the distorted color areas disappear from the screen.
9. Supply a Crosshatch Pattern Signal to Video Input Jack again. Confirm that the Center Bar is at the horizontal center line of the CRT and the V-Center Bar is at the vertical center line of the CRT. Then, tighten the Expansion Screw.
10. Press DISPLAY key (Service Switch) on the remote control for collapse scan. (Refer to How to Enter Service Mode.)
11. Press DISPLAY key on the remote control again to return for full frame scan. Make sure that the entire screen is white. If not, adjust G DRIVE and B DRIVE in EVR adjustment mode.

#### Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value.

### 7.3.13. STATIC CENTRAL CONVERGENCE ADJUSTMENT

**Purpose:** To set the uniform convergence over the whole screen.

**Symptom of Misadjustment:** The convergence on the screen will vary from the center portion to the surrounding edges.

**Test Point :** -----

**Adjustment :** **Pair of 4-Pole Convergence Magnet Rings,**

**Pair of 6-Pole Convergence Magnet Rings**

**Specification :** **Refer to descriptions below.**

**INPUT :** Video Input Jack,

Crosshatch Pattern Signal,

**Mode :** STOP

**Equipment :** NTSC Video Pattern Generator

1. Supply a Crosshatch Pattern Signal to the Video Input Jack.
2. Turn the Pair of 4 - Pole Convergence Magnet Rings so that B and R, at center of CRT, overlap each other.
3. Turn the Pair of 6 - Pole Convergence Magnet Rings so that B and R, that overlapped each other in step 2 overlaps G.

### 7.3.14. DYNAMIC CONVERGENCE ADJUSTMENT

**Purpose:** To set the uniform convergence over the whole screen.

**Symptom of Misadjustment:** The convergence on the screen will vary at the sides of the CRT.

**Test Point :** -----

**Adjustment :** **Deflection Yoke (CRT Unit)**

**Specification :** **Refer to descriptions below.**

**INPUT :** Video Input Jack,

Crosshatch Pattern Signal,

White Pattern Signal

**Mode :** STOP

**Equipment :** NTSC Video Pattern Generator

White Pattern Generator

1. Supply a Crosshatch Pattern Signal to the Video Input Jack.
2. Hold the Deflection Yoke and wiggle it up and down to produce the correct Crosshatch Pattern position.

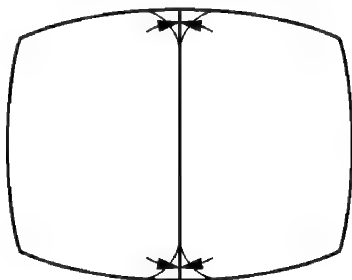


Fig. E10-1

3. Hold Deflection Yoke and wiggle it horizontally (right to left) to produce the correct Crosshatch Pattern position.

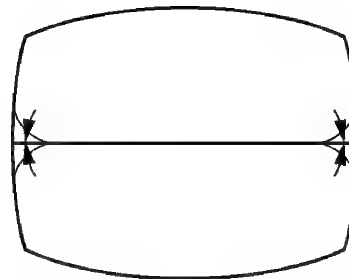
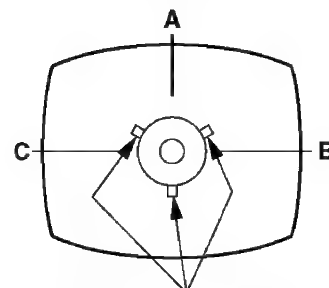


Fig. E10-2

4. Insert three wedges to maintain the correct Crosshatch Pattern Position.

#### Wedge Positions



Wedges (Rear View)

Fig. E10-3

(Confirmation of white)

1. Supply a White Pattern Signal to the Video Input Jack.
2. Confirm that the purity is still correct.
3. If the purity is not acceptable, readjust the purity.

### 7.3.15. V. HEIGHT/H. POSITION ADJUSTMENT

**Purpose:** To set the standard vertical and horizontal picture size.

**Symptom of Misadjustment:** The picture size is on the vertical and horizontal axis is abnormal.

**Test Point :** -----

**Adjustment :** **V SIZE (EVR),**  
**H CENTER (EVR),**  
**V POSITION (EVR)**

**Specification :** Refer to descriptions below.

**INPUT :** Video Input Jack,  
Monoscope Pattern Signal

**Mode :** STOP

**Equipment :** NTSC Video Pattern Generator

1. Supply a Monoscope Pattern Signal to the Video Input Jack.
2. Select H CENTER in EVR adjustment mode and adjust so that A is approximately equal to width B.
3. Select V SIZE in EVR adjustment mode and adjust so that the top 3rd line is just in view.
4. Confirm that the 10th dotted line is in view and that the 11th line is out of view.

If the line are not positioned correctly, select V POSITION in adjustment mode and adjust correctly.

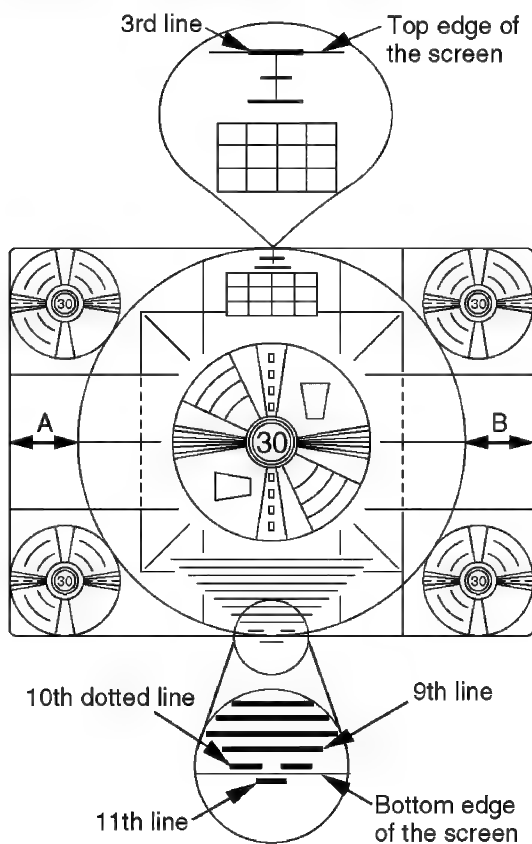


Fig. E11

### 7.3.16. WHITE BALANCE ADJUSTMENT

**Purpose:** To set the standard white level for each color temperature.

**Symptom of Misadjustment:** White becomes bluish or reddish.

**Test Point :** **TP50 (CRT C.B.A)**

**Adjustment :** **FOCUS CONTROL (Flyback Transformer),**  
**SCREEN CONTROL (Flyback Transformer),**  
**SUB BRIGHT (EVR),**  
**G DRIVE (EVR),**  
**B DRIVE (EVR),**  
**R CUT -OFF (EVR),**  
**G CUT -OFF (EVR),**  
**B CUT -OFF (EVR)**

**Specification :** Refer to descriptions below.

**INPUT :** Video Input Jack,  
Monoscope Pattern Signal,  
White Pattern Signal

**Mode :** STOP

**Equipment :** NTSC Video Pattern Generator,  
White Pattern Generator,  
Oscilloscope

1. Supply a Monoscope Pattern Signal to the Video Input Jack.
2. Connect the Oscilloscope to TP50 on the CRT C.B.A. (Use TP47 for GND.)
3. Select SUB BRIGHT and move the shaded area to the value in EVR adjustment mode.
4. Adjust the FOCUS CONTROL on the Flyback Transformer so that the center of picture is the sharpest.
5. Press DISPLAY key (Service Switch) on the remote control for collapse scan. (Refer to How to Enter Service Mode.)
6. Turn the SCREEN CONTROL on Flyback Transformer fully counterclockwise.
7. Adjust SUB BRIGHT in EVR adjustment mode so that the level A is 115 VDC $\pm$ 5 VDC.

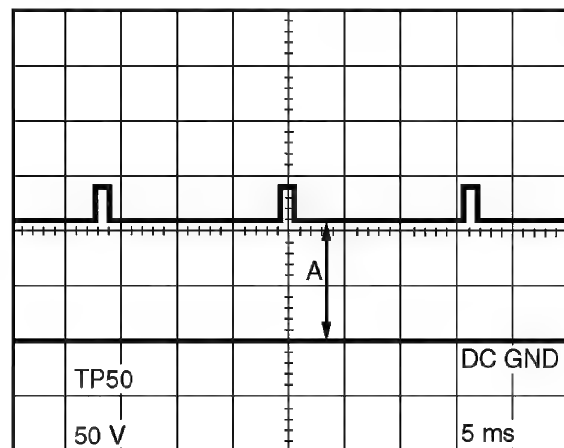


Fig. E12

8. Turn the SCREEN CONTROL on the Flyback Transformer clockwise carefully and stop at the point where any color is first observed.

9. In EVR adjustment mode, select the two colors not observed in step 8 from the following control functions (B CUT -OFF, G CUT -OFF, or R CUT -OFF) and adjust so that the horizontal line becomes white.

For example, if the horizontal line appeared red in step 8, select and adjust the B CUT -OFF and G CUT -OFF.

10. Supply a White Pattern Signal to the Video Input Jack.
11. Press DISPLAY key on the remote control again to return for full frame scan.
12. Select G DRIVE and B DRIVE in EVR adjustment mode and adjust so that the entire screen is white.
13. Select SUB BRIGHT in EVR adjustment mode. Then, after making a note of the original value, adjust to the minimum (C0) and while turning SUB BRIGHT value from minimum (C0) up to maximum (3F), confirm that the screen is tracking the White Pattern properly. Repeat the above steps 5, 9, 11, and 12 until the screen is properly tracking the White Pattern.

#### Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value.

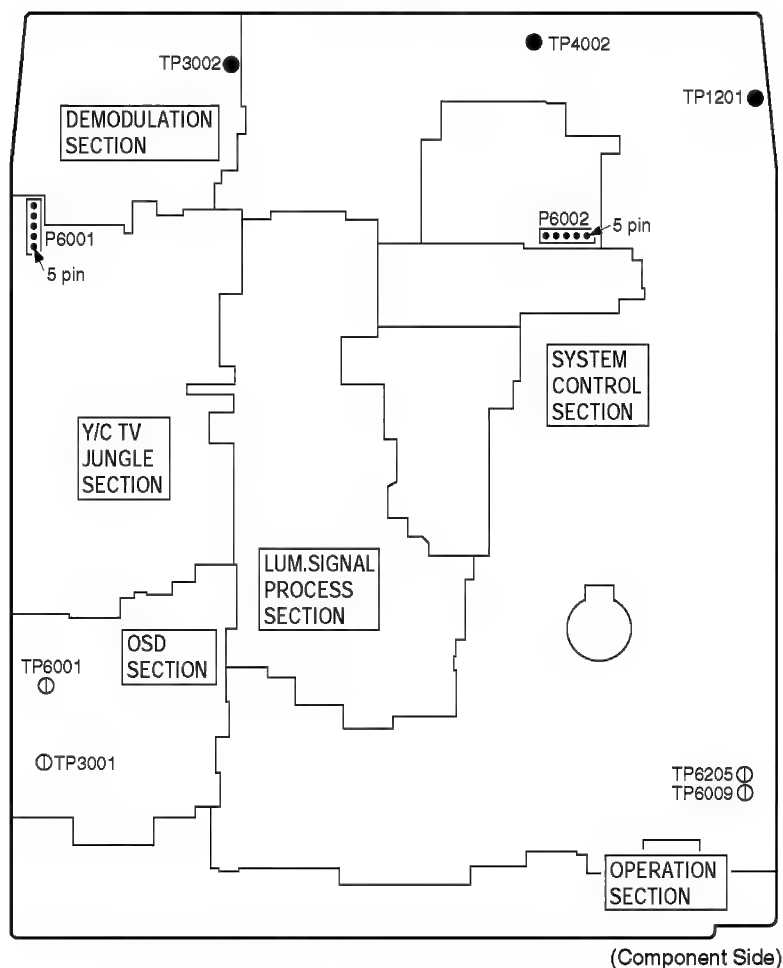
### 7.3.17. SUB BRIGHTNESS ADJUSTMENT

Purpose:	To set the optimum brightness level.
Symptom of	The picture is too white or too black.
Misadjustment:	-----
<b>Test Point :</b>	-----
<b>Adjustment :</b>	<b>SUB BRIGHT (EVR)</b>
<b>Specification :</b>	<b>Refer to descriptions below.</b>
INPUT :	-----
Mode :	STOP

1. Do not input any signal to the unit.
2. Set INPUT SELECT item to LINE in SET UP TV menu to display black screen.
3. Select SUB BRIGHT in EVR adjustment mode, and adjust so that the black screen starts to turn grey (lighting only).

## 7.4. TEST POINTS AND CONTROL LOCATION

### Main C.B.A.

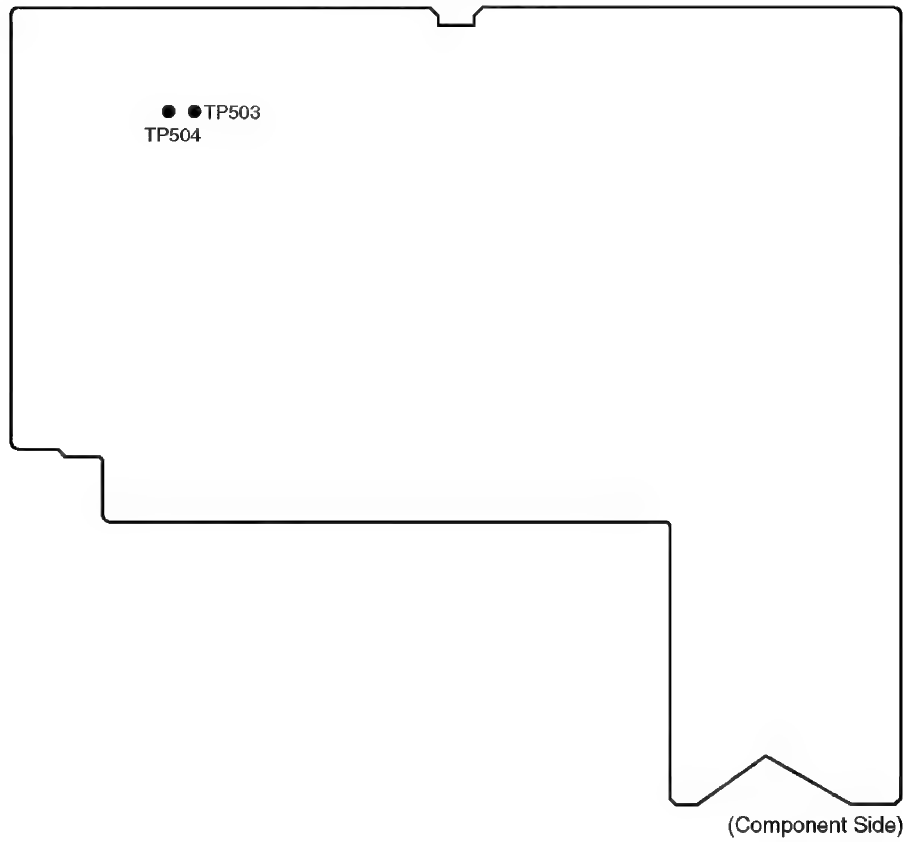


FUNCTION OF IMPORTANT TEST POINTS	
TP1201	+14 V
TP3001	Video Signal
TP3002	REC/PB Video envelope signal
TP4002	Normal Audio signal
TP6001	Service Test Point (inhibit sensors)
TP6009	+5 V
TP6003 (Pin5 of P6002)	Defeat Auto tracking function (connect to +5V(TP6009))
TP6205	Head SW.

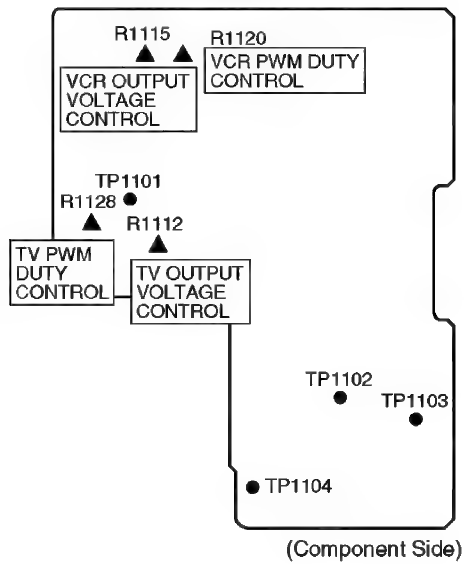
#### Test Point Information

- Test Point with a Test Pin.
- ⊙ Test Point with a jumper wire across a hole in the P.C.B.
- ⊖ Test Point with no Test Pin.

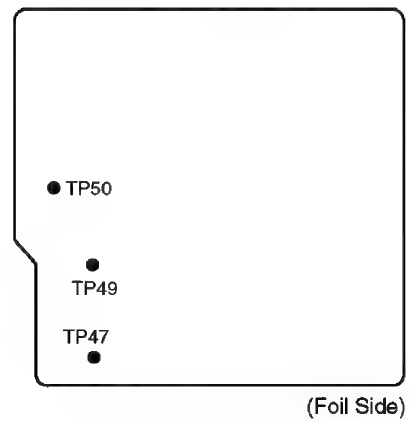
## TV Main C.B.A.



## Sub Power C.B.A.








## CRT C.B.A.





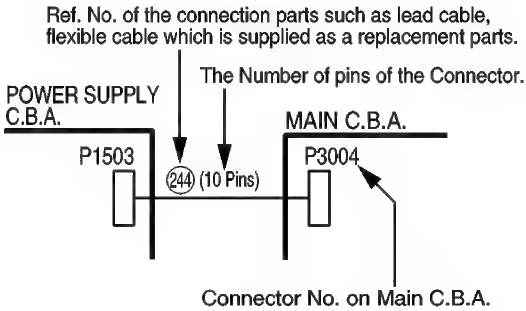
8 SCHEMATIC DIAGRAMS

8.1. SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES

1. **Important safety notice**  
Components identified by the sign  have special characteristics important for safety. When replacing any of these components. Use only the specified parts.
2. Do not use the part number shown on this drawing for ordering.  
The correct part number and part value is shown in the parts list, and may be slightly different or amended since this drawing was prepared.
3. Use only original replacement parts:  
To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.
4. Parts different in shape or size may be used.  
However, only interchangeable parts will be supplied as service replacement parts.
5. Test point information  
 :Test point with a jumper wire across a hole in P.C.B.  
 :Test point with a component lead on the foil side.  
 :Test point with no test pin.  
 :Test point with a test pin.

Schematic Diagram Notes

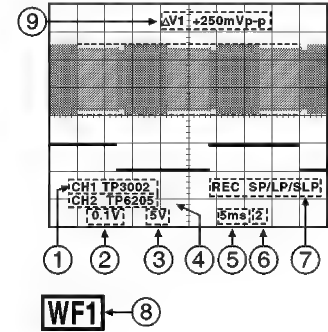
1. Indication for Zener Voltage of Zener Diodes  
The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.  
  
Example:  
(6.2V).....Zener Voltage
2. How to identify Connectors  
Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to, in other words, its counter part.  
Use the interconnection schematic diagram to find the connection between associated connectors.  
  
Example:  
The connections between C.B.A.s are shown below.



3. Parts enclosed in dashed lines marked "Z" are not used in any models included in this service manual.  
  
Example:
4. The part number shown on this drawing is only main part number, except for safety parts. Be sure to make your orders of replacement parts according to the parts list.

Signal Waveform Note

How to read Signal Waveform



- ① Connecting Point
- ② Volts/Div
- ③ Volts/Div
- ④ Connecting Point
- ⑤ Time/Div
- ⑥ Trigger Channel of the scope  
(1:CH1,2:CH2)
- ⑦ Operation Mode of VCR
- ⑧ Waveform Point on Schematic
- ⑨ ΔV1:Peak to Peak

Voltage Chart Note

Voltage Measurement

- a. Color bar signal in SP mode.
- b. ---:Unmeasurable or not necessary to measure.

Circuit Board Layout Note

Circuit Board Layout shows components installed for various models.  
For proper parts content for the model you are servicing, please refer to the schematic diagram and parts list.

NOTE:

Circuit Board Layout includes components which are not used.

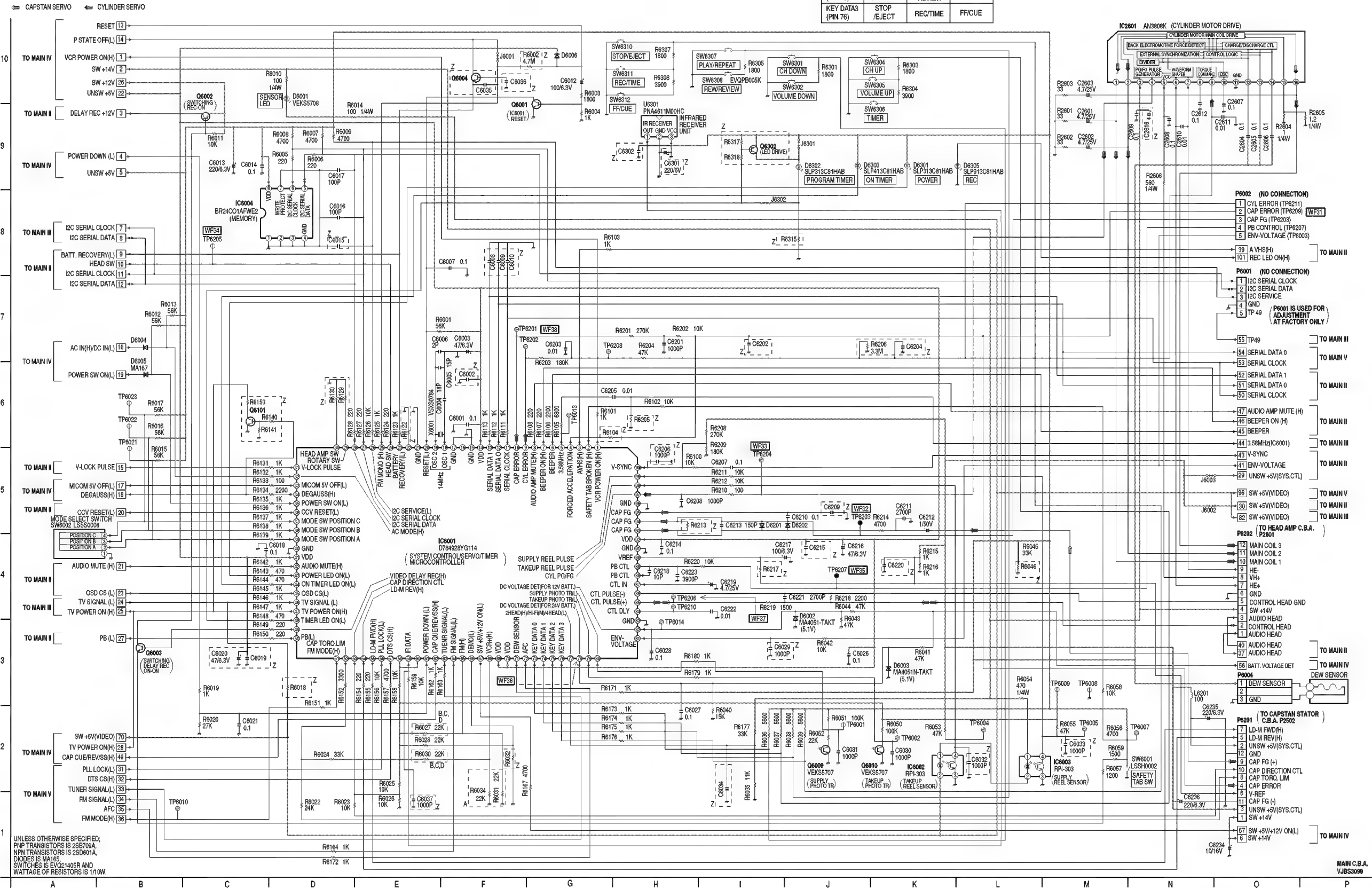
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z

Note : Refer to item 3 of Schematic Diagram Notes for mark "Z".

8.2. MAIN SCHEMATIC DIAGRAM

MAIN I (SYSTEM CONTROL/SERVO/OPERATION/CYLINDER DRIVE) SCHEMATIC DIAGRAM



KEY MATRIX CHART

TERMINAL VOLTAGE	0 ~ 0.5V	0.6 ~ 1.8V	1.9 ~ 3.1V
KEY DATA0 (PIN 73)	CH DOWN	VOLUME DOWN	----
KEY DATA1 (PIN 74)	CH UP	VOLUME UP	TIMER
KEY DATA2 (PIN 75)	PLAY /REPEAT	REW/ REVIEW	----
KEY DATA3 (PIN 76)	STOP /EJECT	REC/TIME	FF/CUE

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

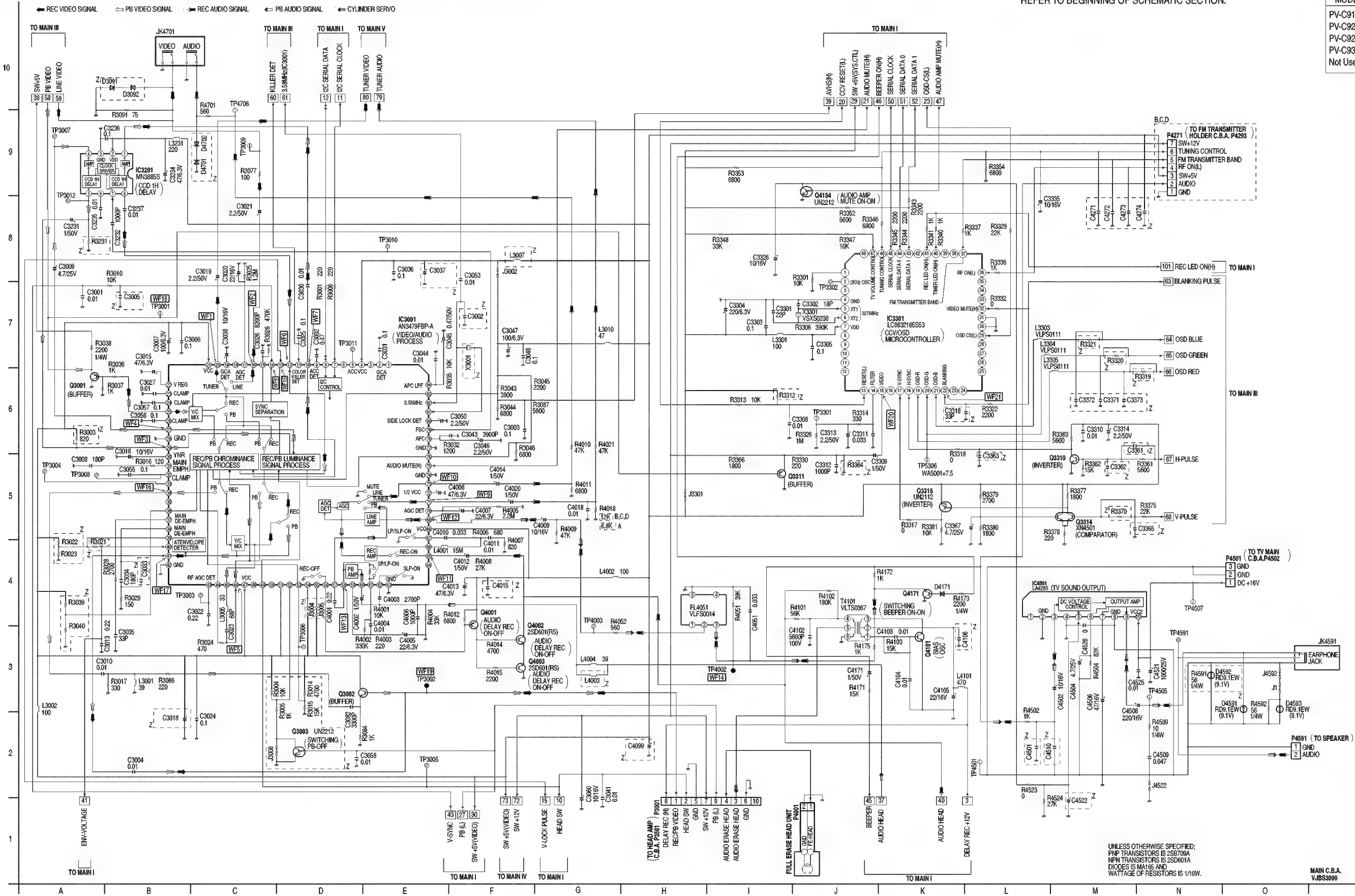
MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z

MAIN II (SIGNAL PROCESS/CCV/OSD/AUDIO) SCHEMATIC DIAGRAM

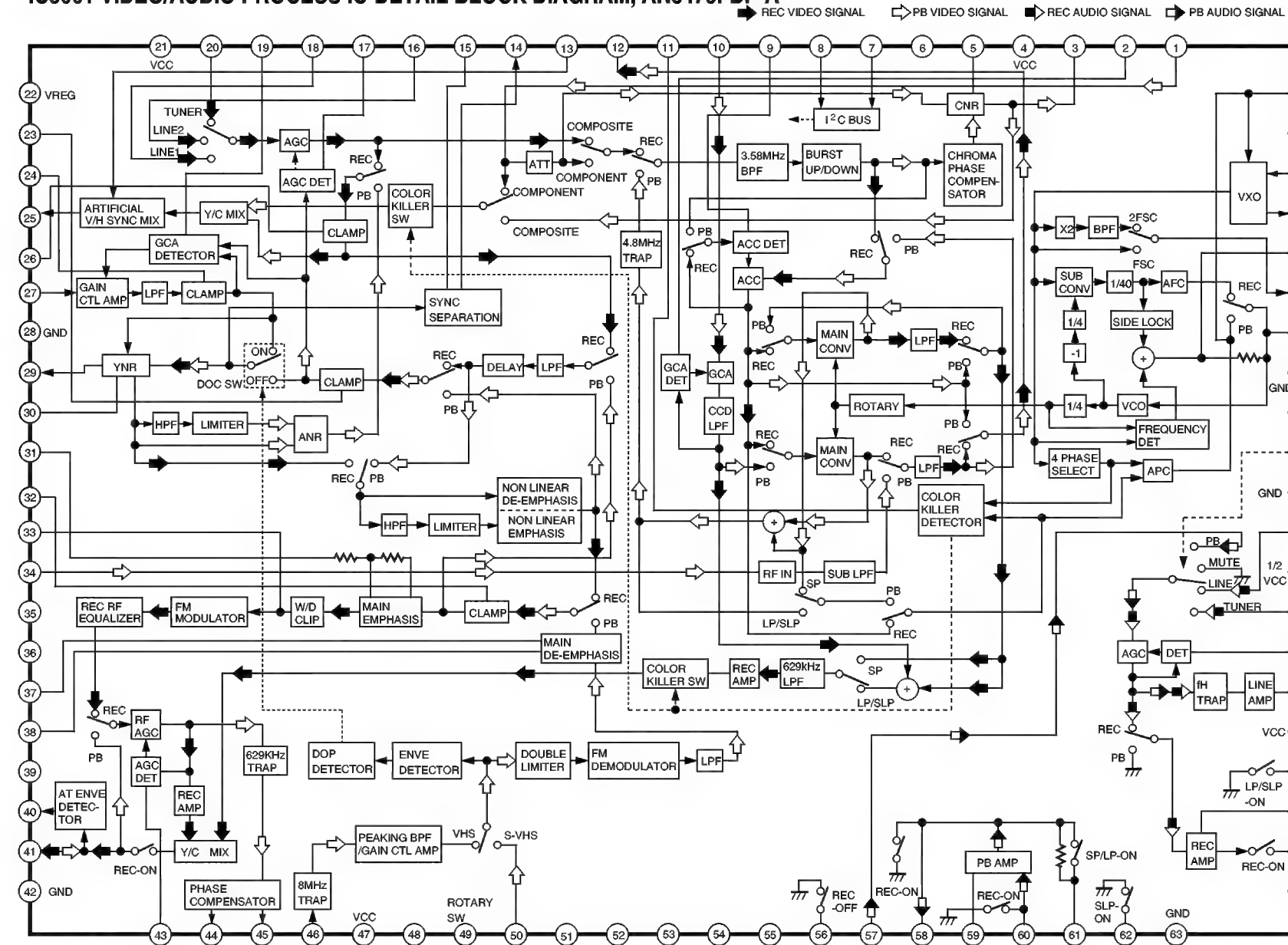
NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART  
OF MODELS & MARKS

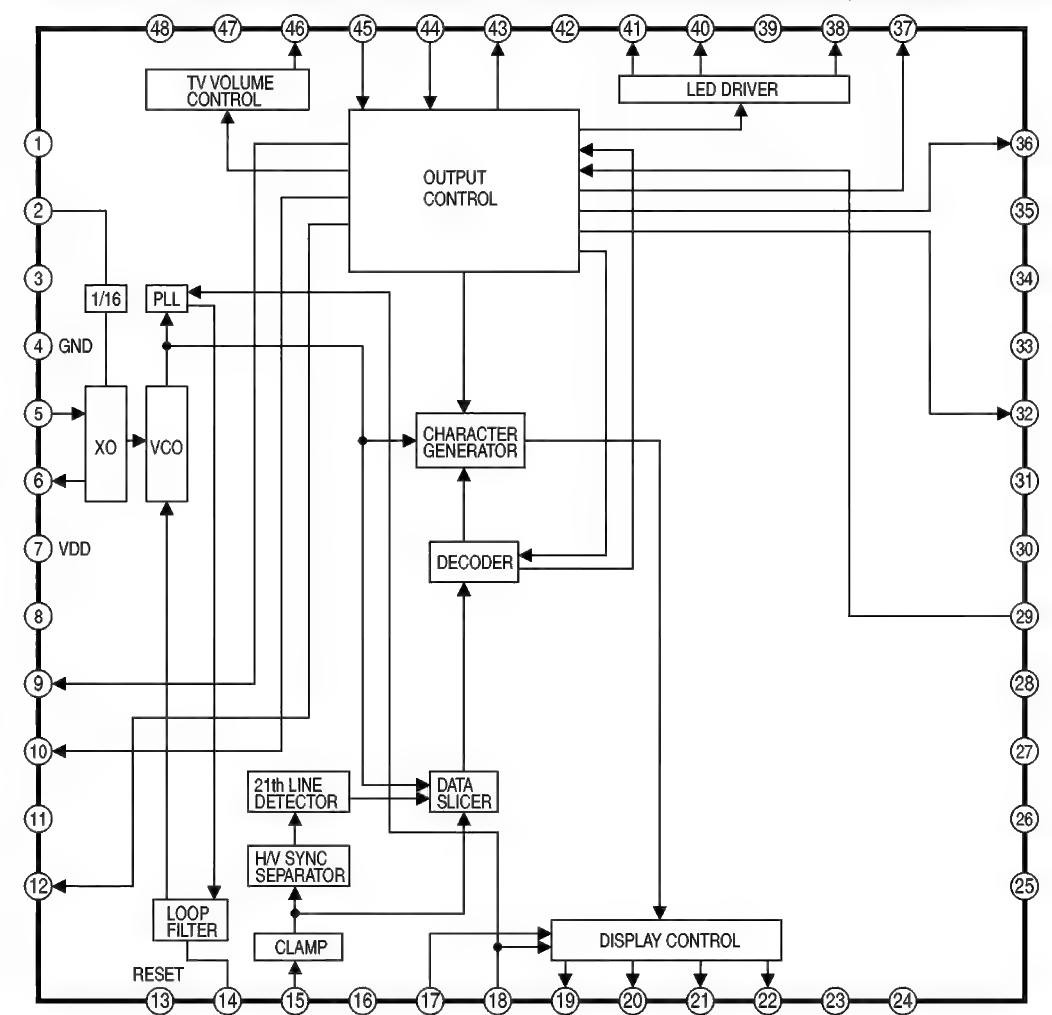
MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z




### IC3001 VIDEO/AUDIO PROCESS IC-DETAIL BLOCK DIAGRAM, AN3479FBP-A



### IC3301 8BIT MICROCONTROLLER IC-DETAIL BLOCK DIAGRAM, LC8632165S53

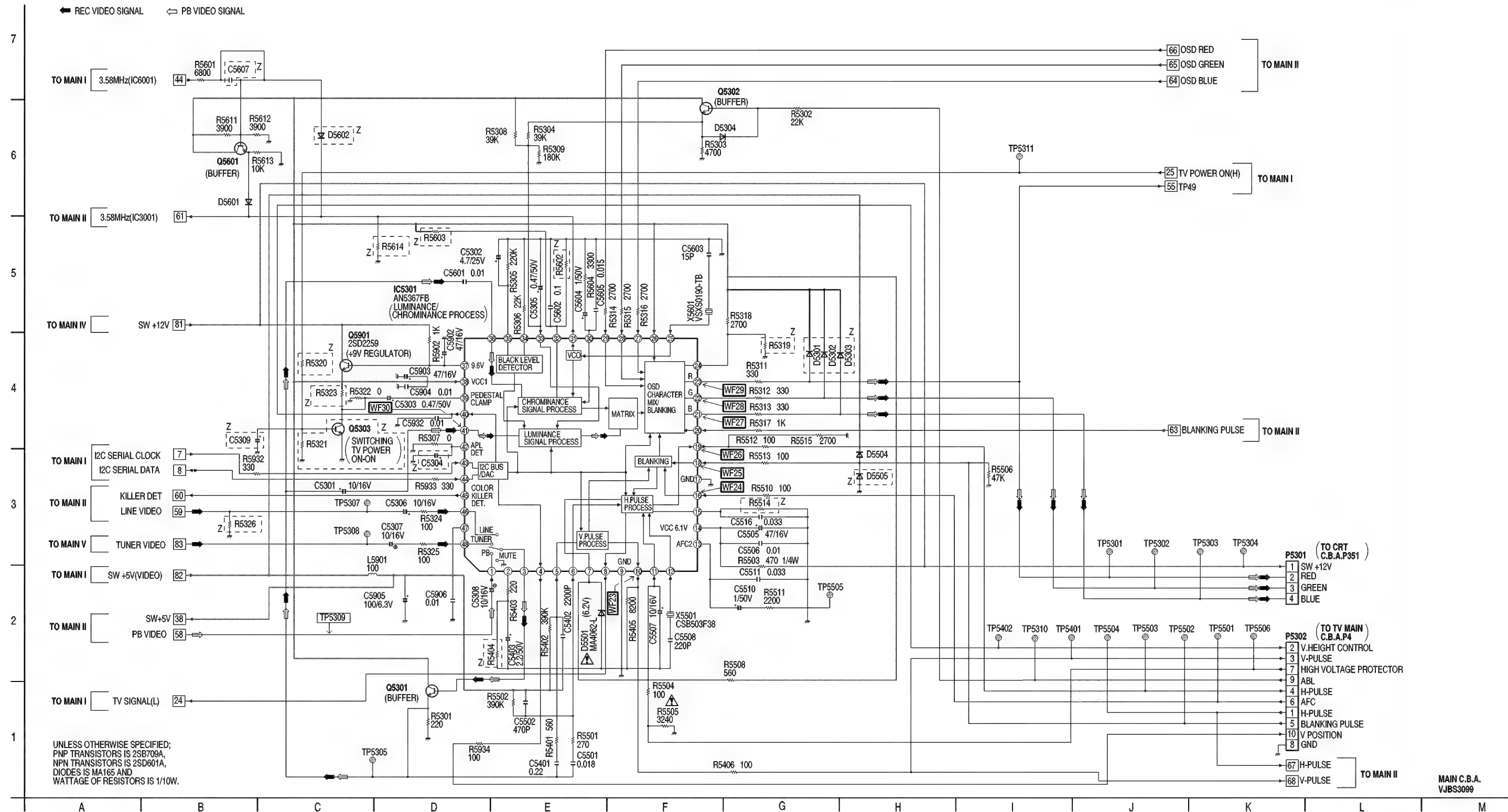


### MAIN III (TV Y/C PROCESS) SCHEMATIC DIAGRAM

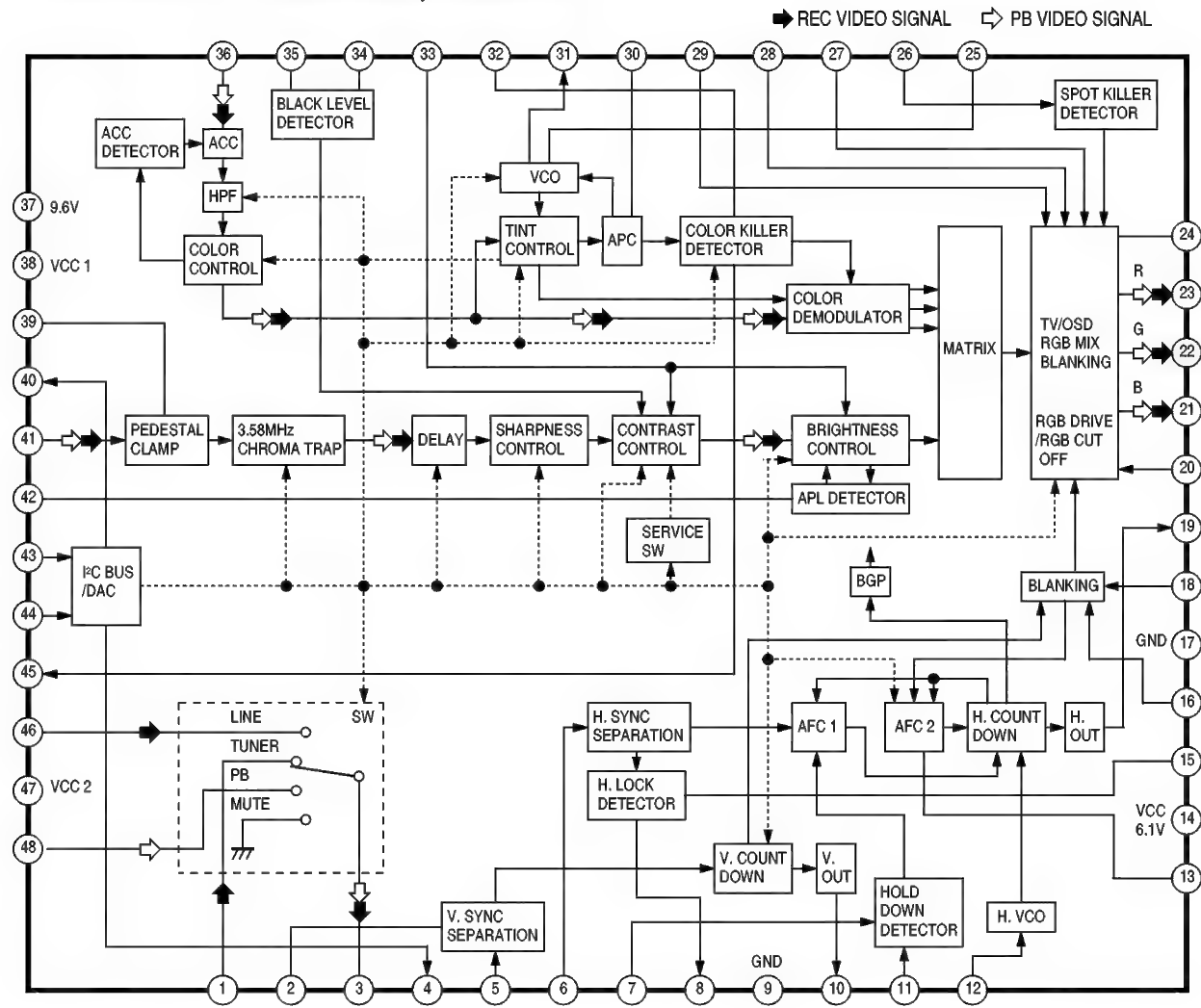
**IMPORTANT SAFETY NOTICE:**  
COMPONENTS IDENTIFIED BY THE SIGN  HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.

**NOTE:**  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z




**IC5301 LUMINANCE/CHROMINANCE PROCESS**  
**IC-DETAIL BLOCK DIAGRAM, AN5367FB**

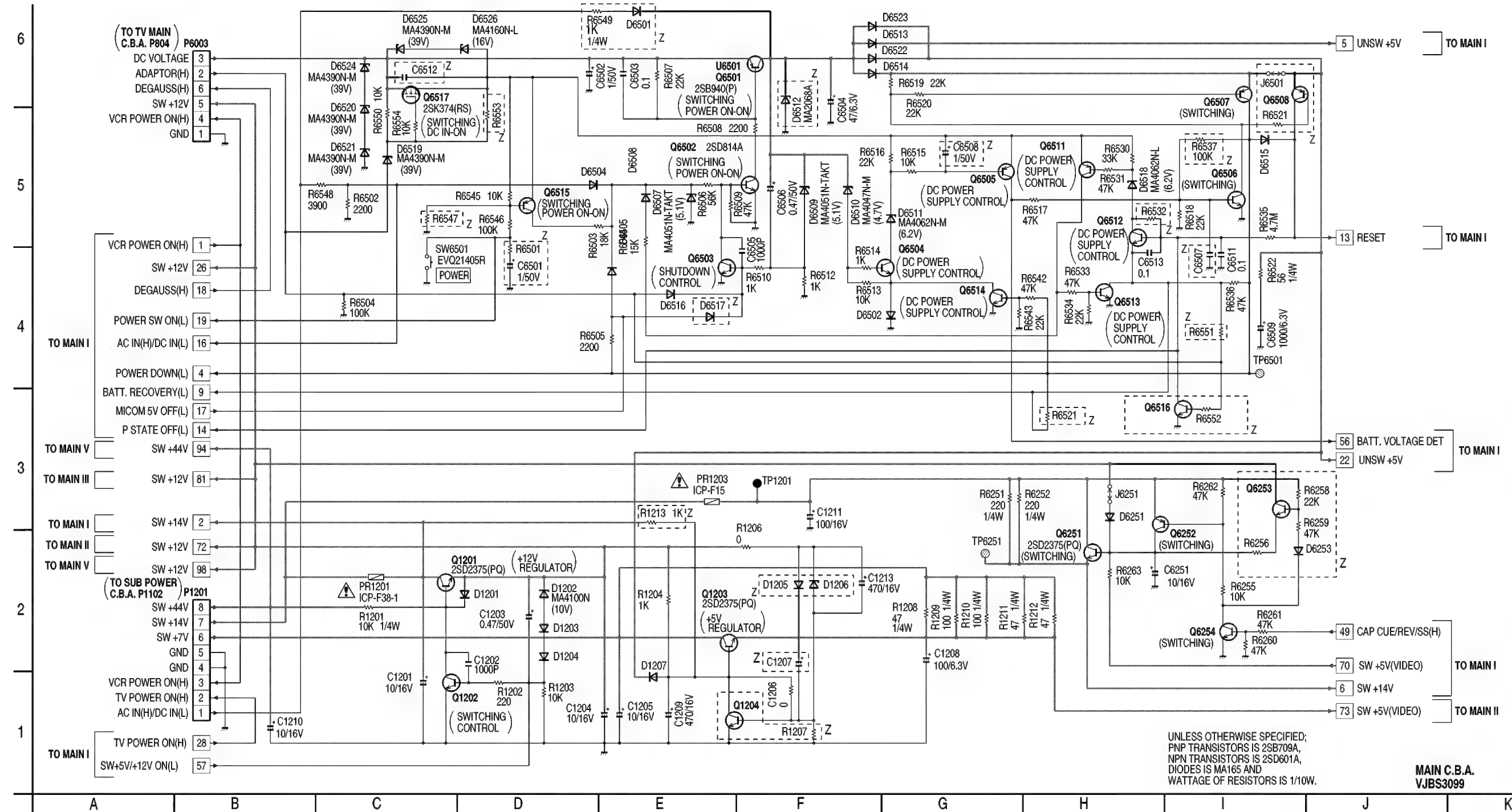


### MAIN IV (POWER SUPPLY) SCHEMATIC DIAGRAM

**NOTE:**  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

**IMPORTANT SAFETY NOTICE:**  
COMPONENTS IDENTIFIED BY THE SIGN  HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z

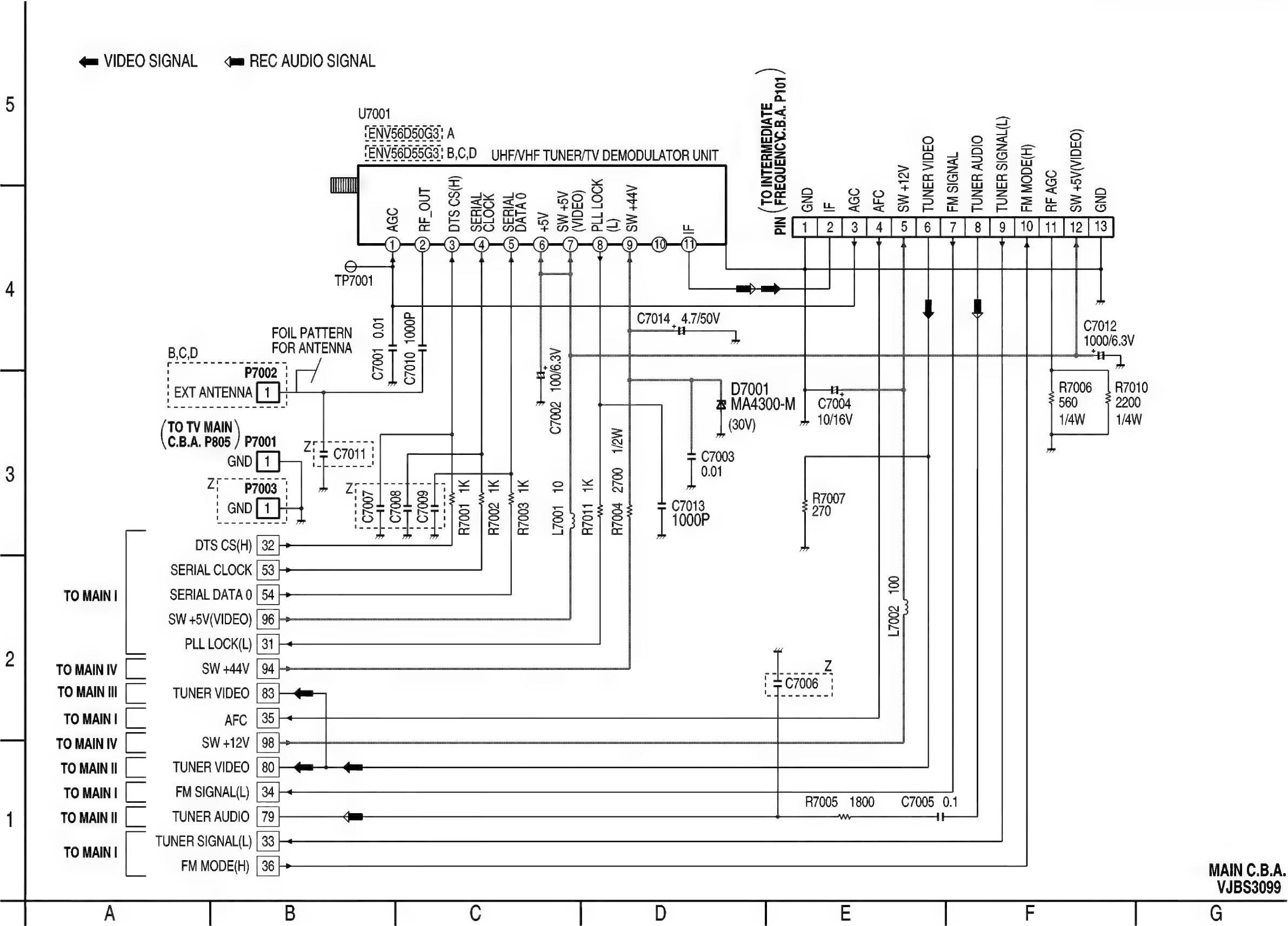




MAIN V (DEMODULATOR) SCHEMATIC DIAGRAM

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS	
MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z





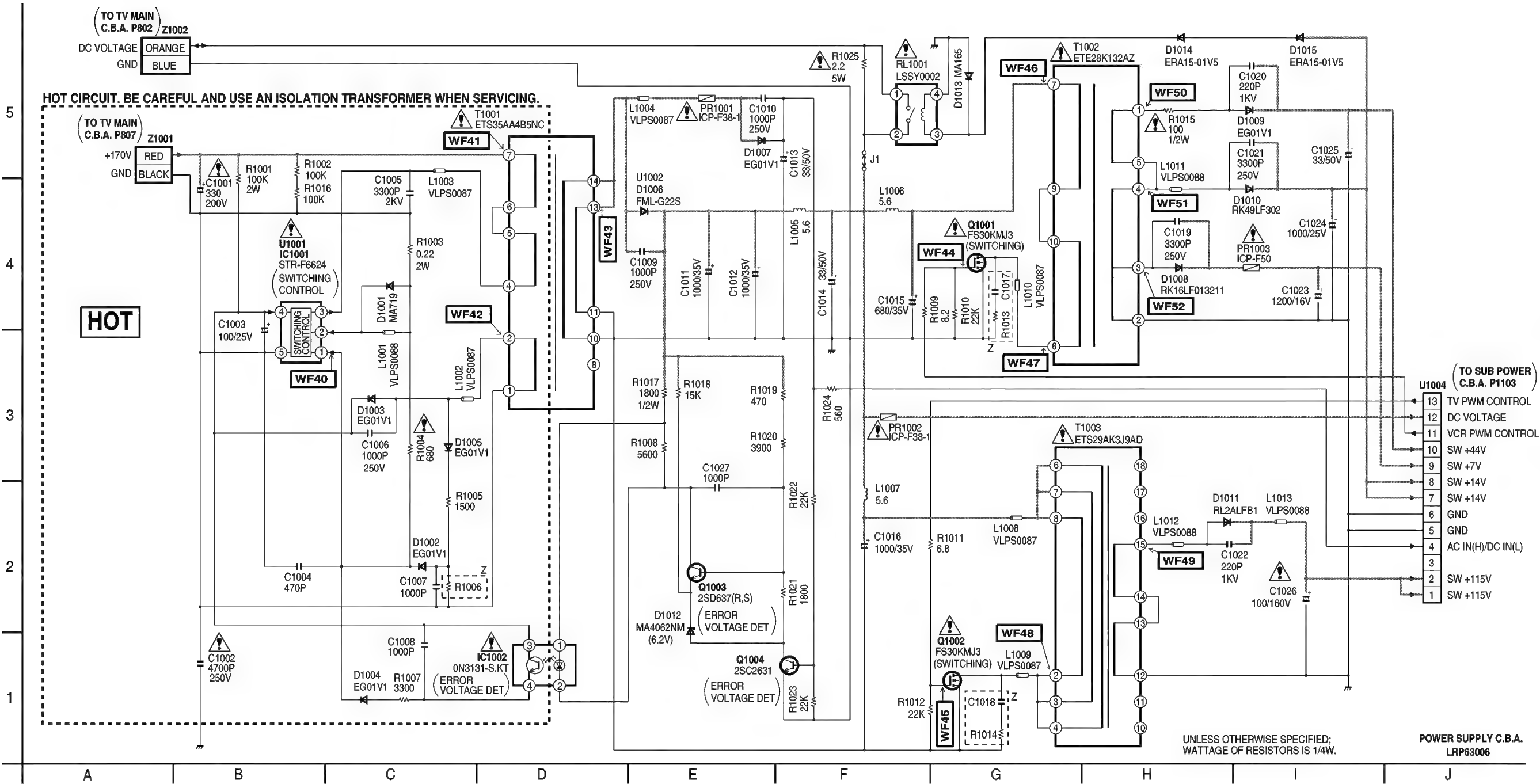
8.3. POWER SUPPLY SCHEMATIC DIAGRAM

POWER SUPPLY SCHEMATIC DIAGRAM

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:  
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS	
MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z



8.4. SUB POWER SCHEMATIC DIAGRAM

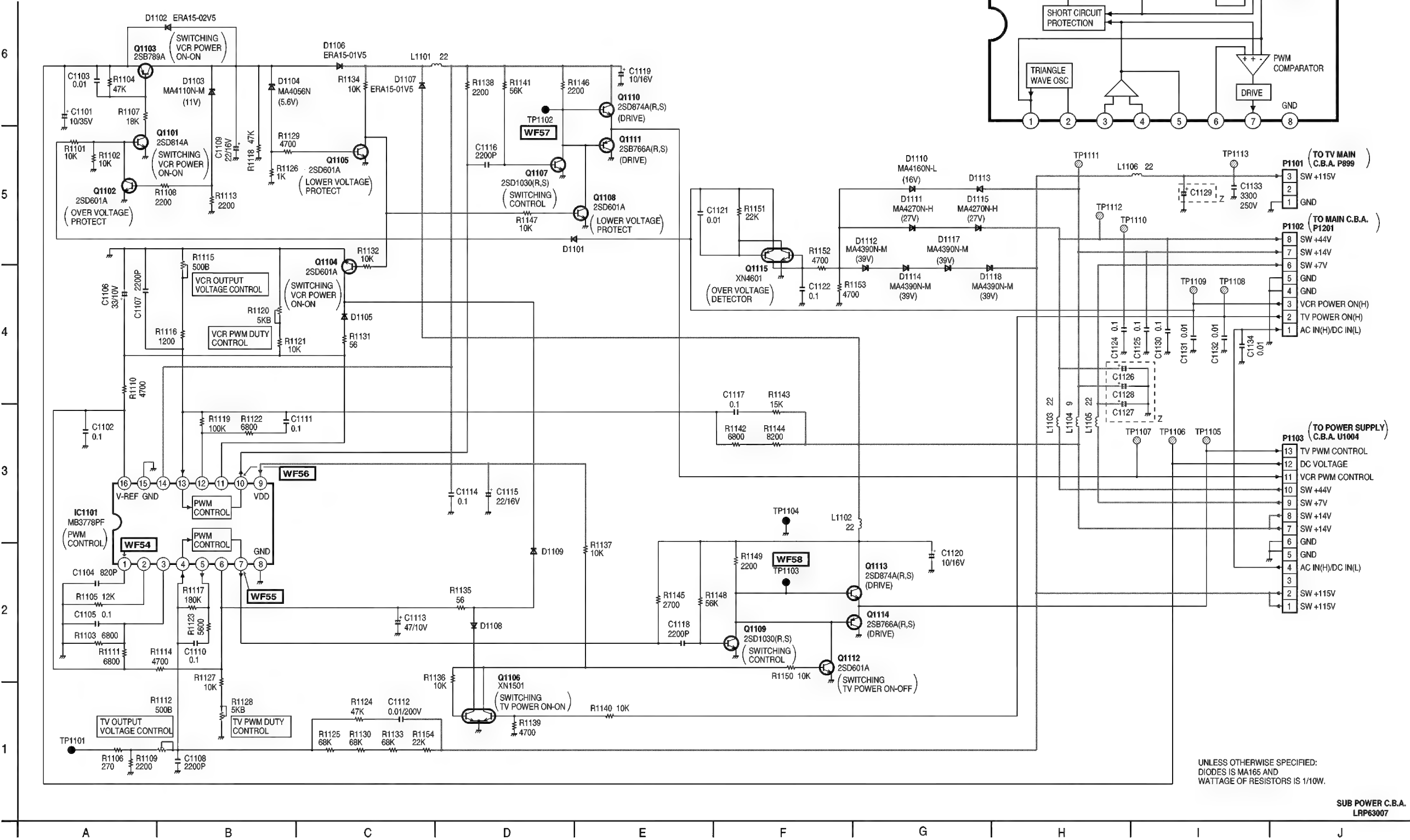
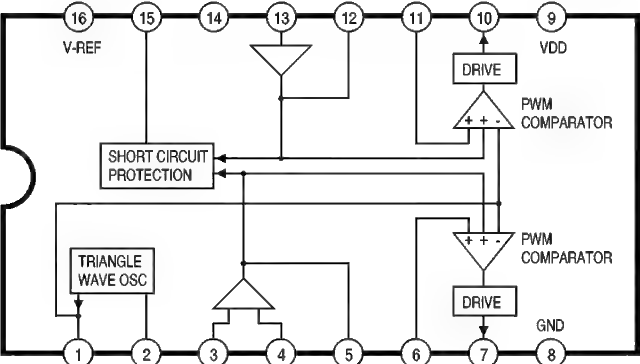
SUB POWER SCHEMATIC DIAGRAM

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z

IC1101 PWM CONTROL IC-DETAIL BLOCK DIAGRAM, MB3778PF



UNLESS OTHERWISE SPECIFIED:  
DIODES IS MA165 AND  
WATTAGE OF RESISTORS IS 1/10W.

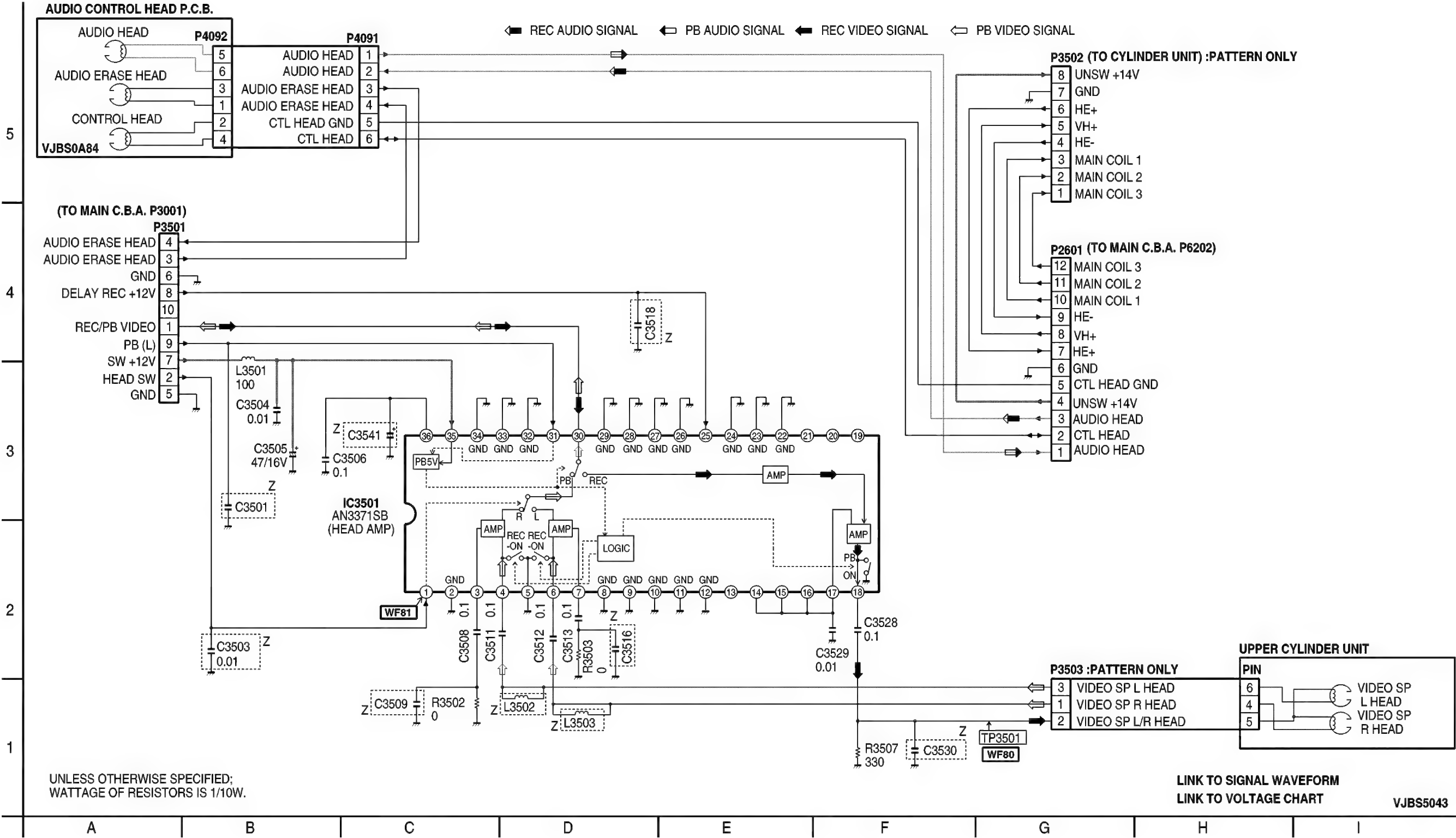
SUB POWER C.B.A.  
LRP63007

8.5. HEAD AMP SCHEMATIC DIAGRAM

HEAD AMP SCHEMATIC DIAGRAM

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS	
MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z



8.6. TV MAIN SCHEMATIC DIAGRAM

TV MAIN SCHEMATIC DIAGRAM

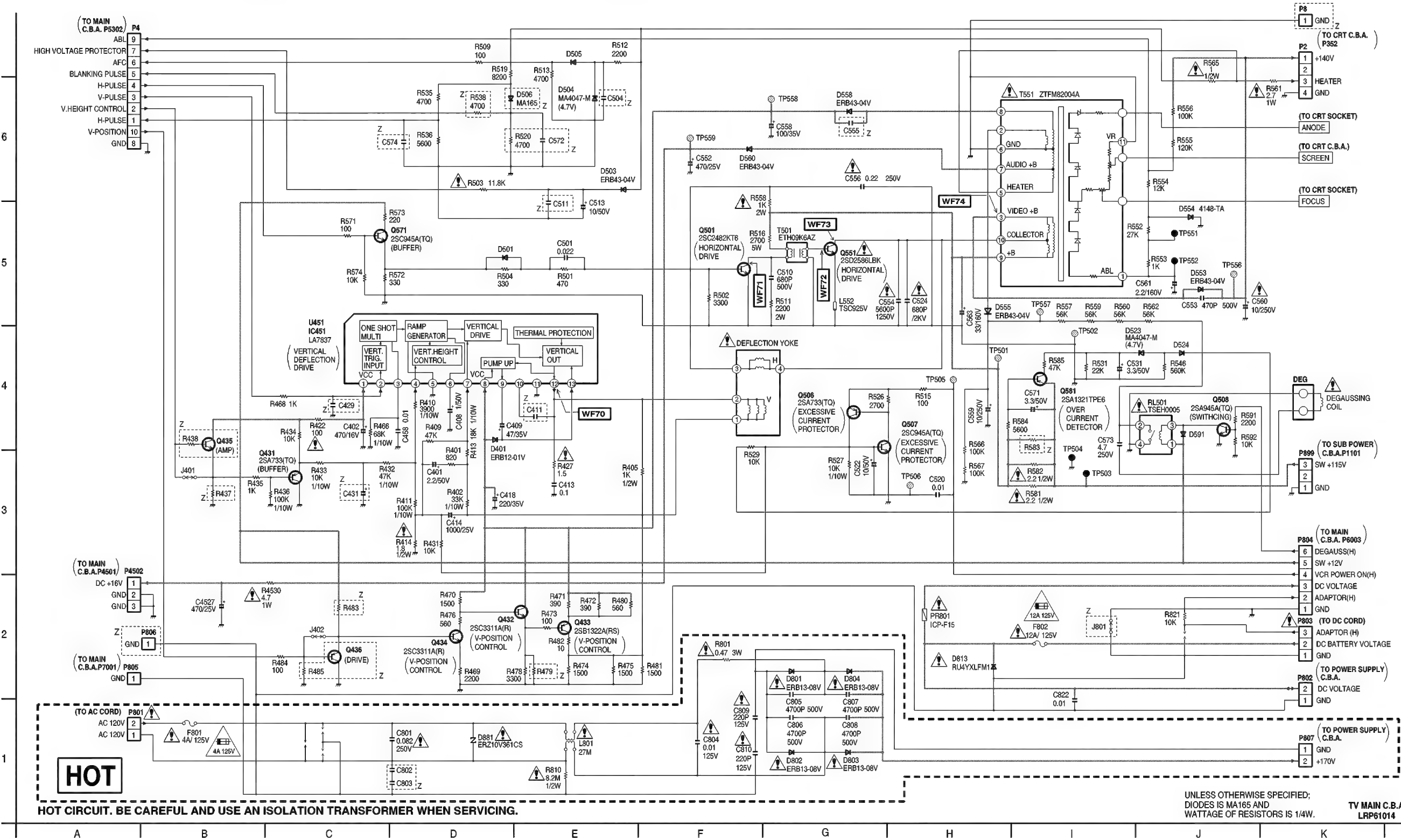
CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 4A 125V FUSE.  
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCENDIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 4A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 12A 125V FUSE.  
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCENDIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 12A 125V

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:  
COMPONENTS IDENTIFIED BY THE SIGN ⚡ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z




UNLESS OTHERWISE SPECIFIED;  
DIODES IS MA165 AND  
WATTAGE OF RESISTORS IS 1/4W.

TV MAIN C.B.A.  
LRP61014

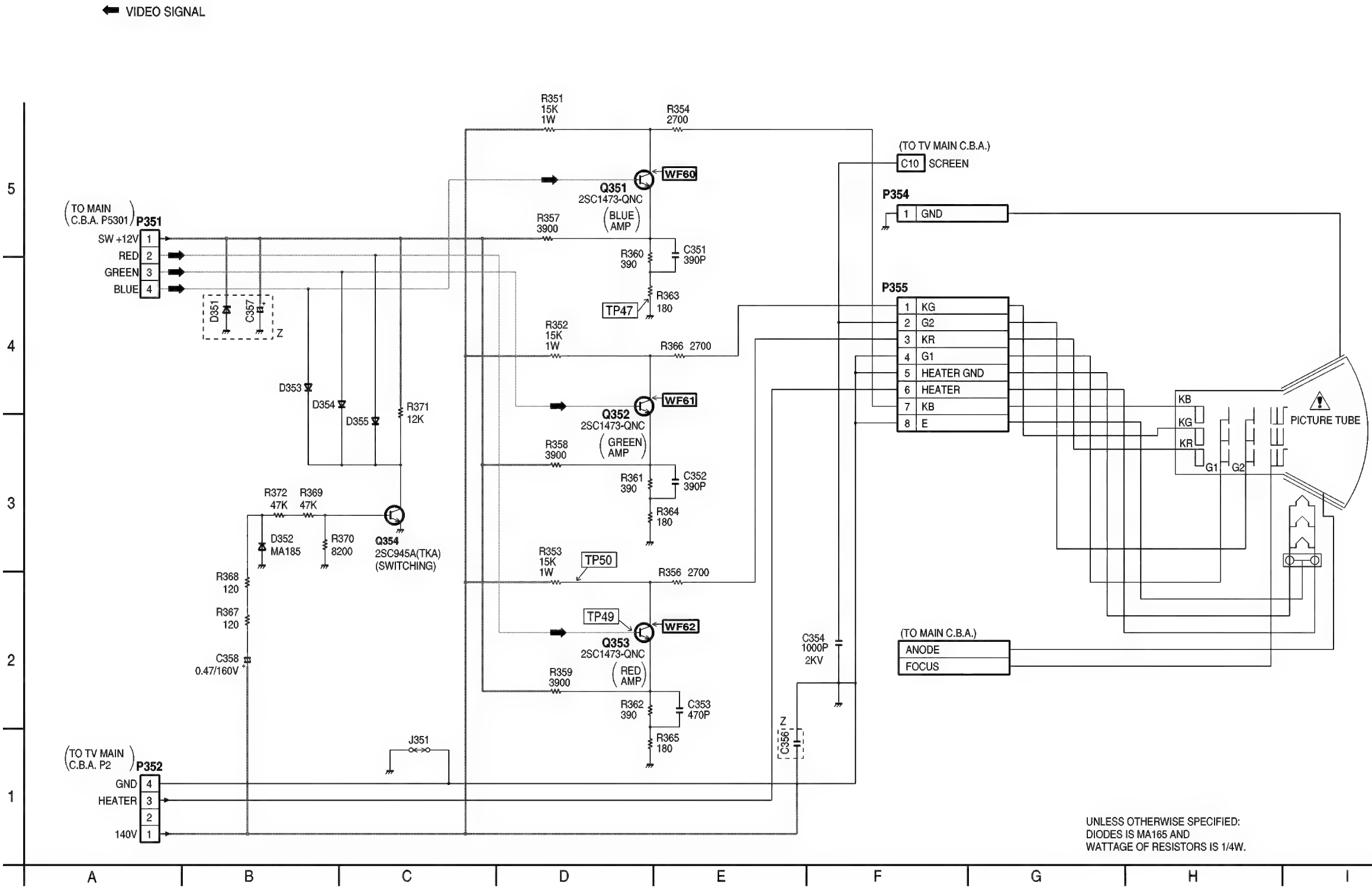
8.7. CRT SCHEMATIC DIAGRAM

CRT SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:  
COMPONENTS IDENTIFIED BY THE SIGN  HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS	
MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z



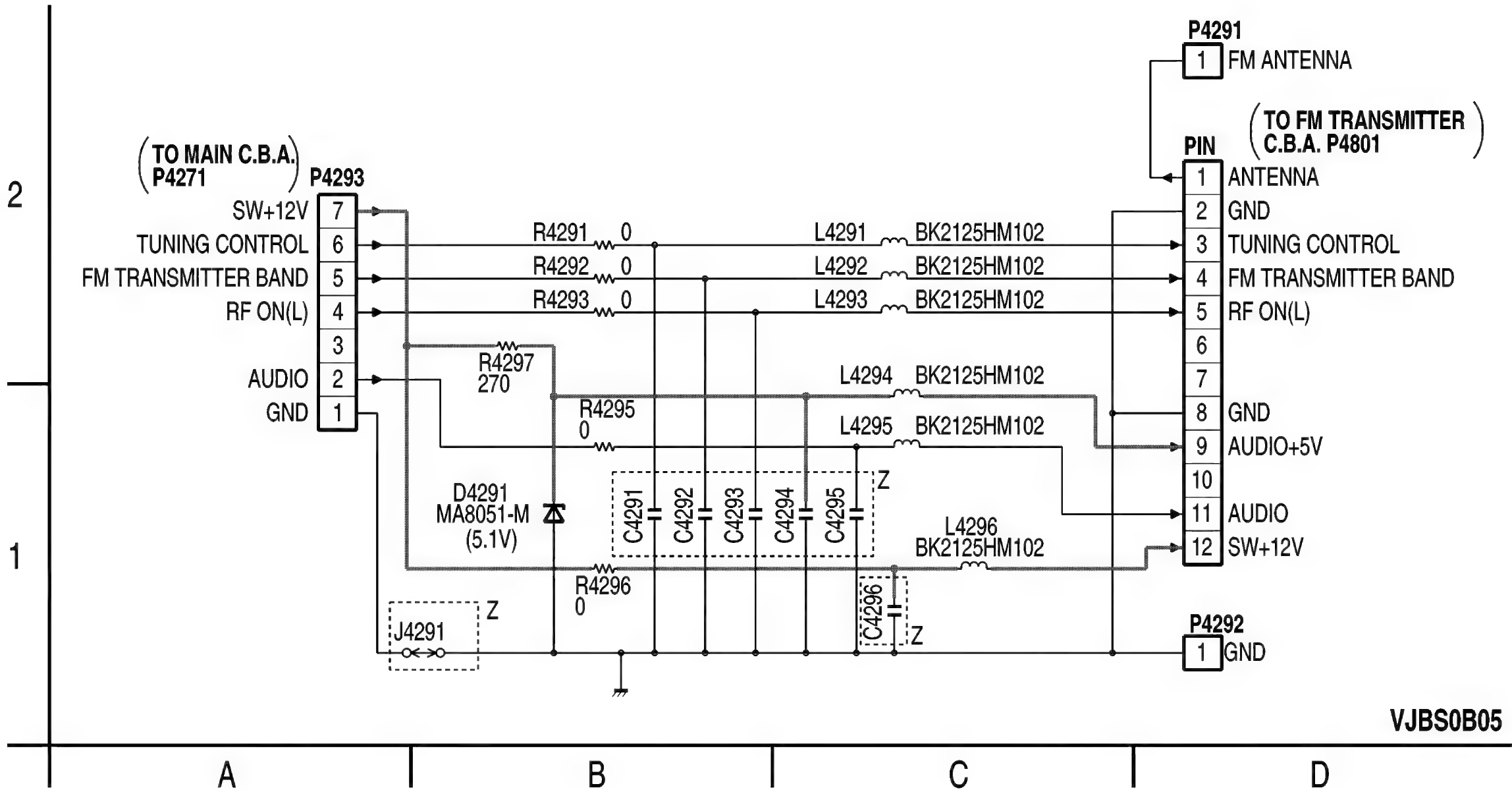
8.8. FM TRANSMITTER HOLDER SCHEMATIC DIAGRAM

(Model: PV-C921, PV-C921-K, PV-C931W)

FM TRANSMITTER HOLDER SCHEMATIC DIAGRAM (B, C, D)

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS	
MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z



VJBS0B05

8.9. CAPSTAN STATOR SCHEMATIC DIAGRAM

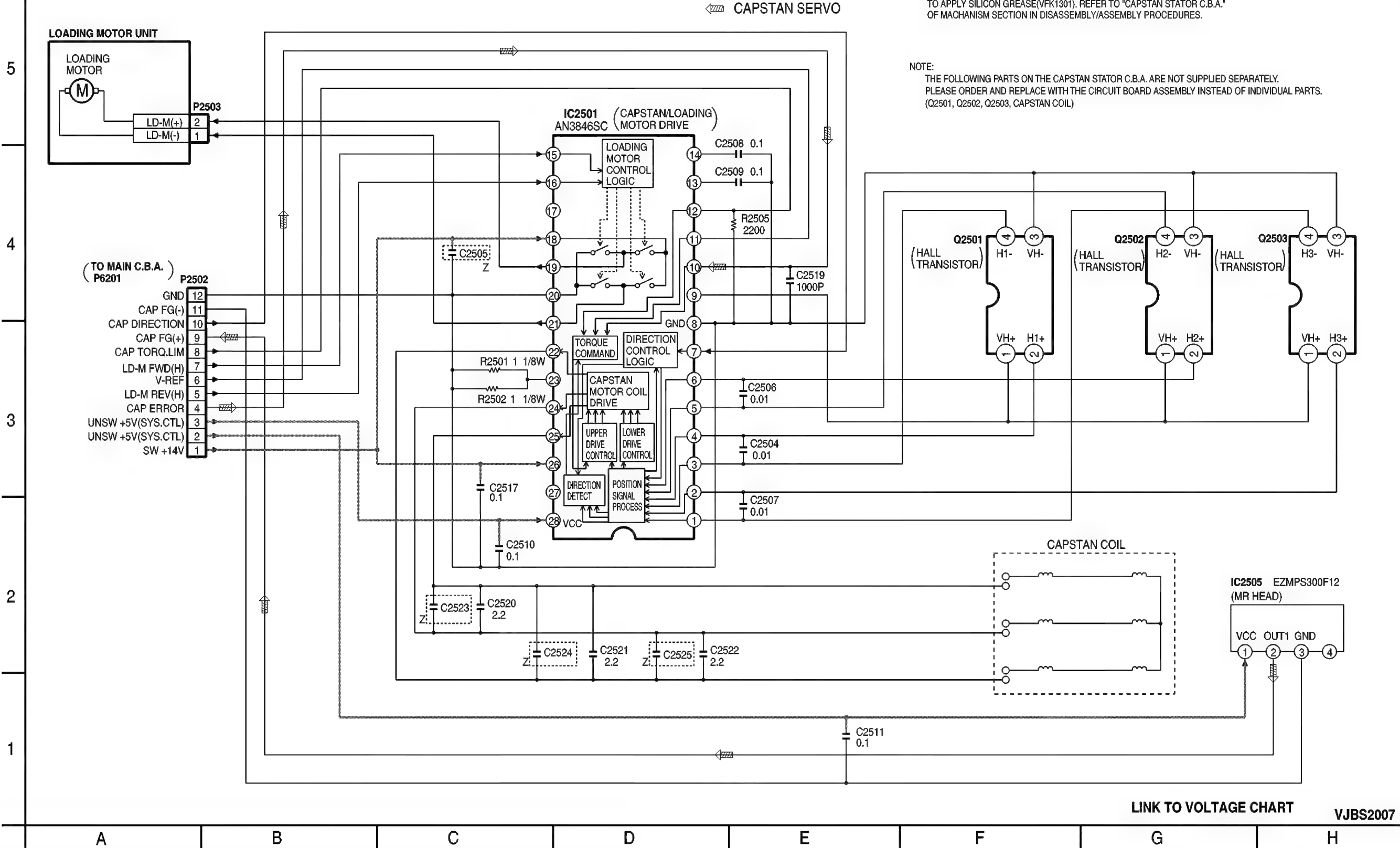
CAPSTAN STATOR SCHEMATIC DIAGRAM

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS	
MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z

NOTE:  
WHEN INSTALLING THE IC2501(AN3845SC) OR CAPSTAN STATOR C.B.A., BE SURE  
TO APPLY SILICON GREASE(VFK1301). REFER TO "CAPSTAN STATOR C.B.A."  
OF MECHANISM SECTION IN DISASSEMBLY/ASSEMBLY PROCEDURES.

NOTE:  
THE FOLLOWING PARTS ON THE CAPSTAN STATOR C.B.A. ARE NOT SUPPLIED SEPARATELY.  
PLEASE ORDER AND REPLACE WITH THE CIRCUIT BOARD ASSEMBLY INSTEAD OF INDIVIDUAL PARTS.  
(Q2501, Q2502, Q2503, CAPSTAN COIL)



8.10. INTERCONNECTION SCHEMATIC DIAGRAM

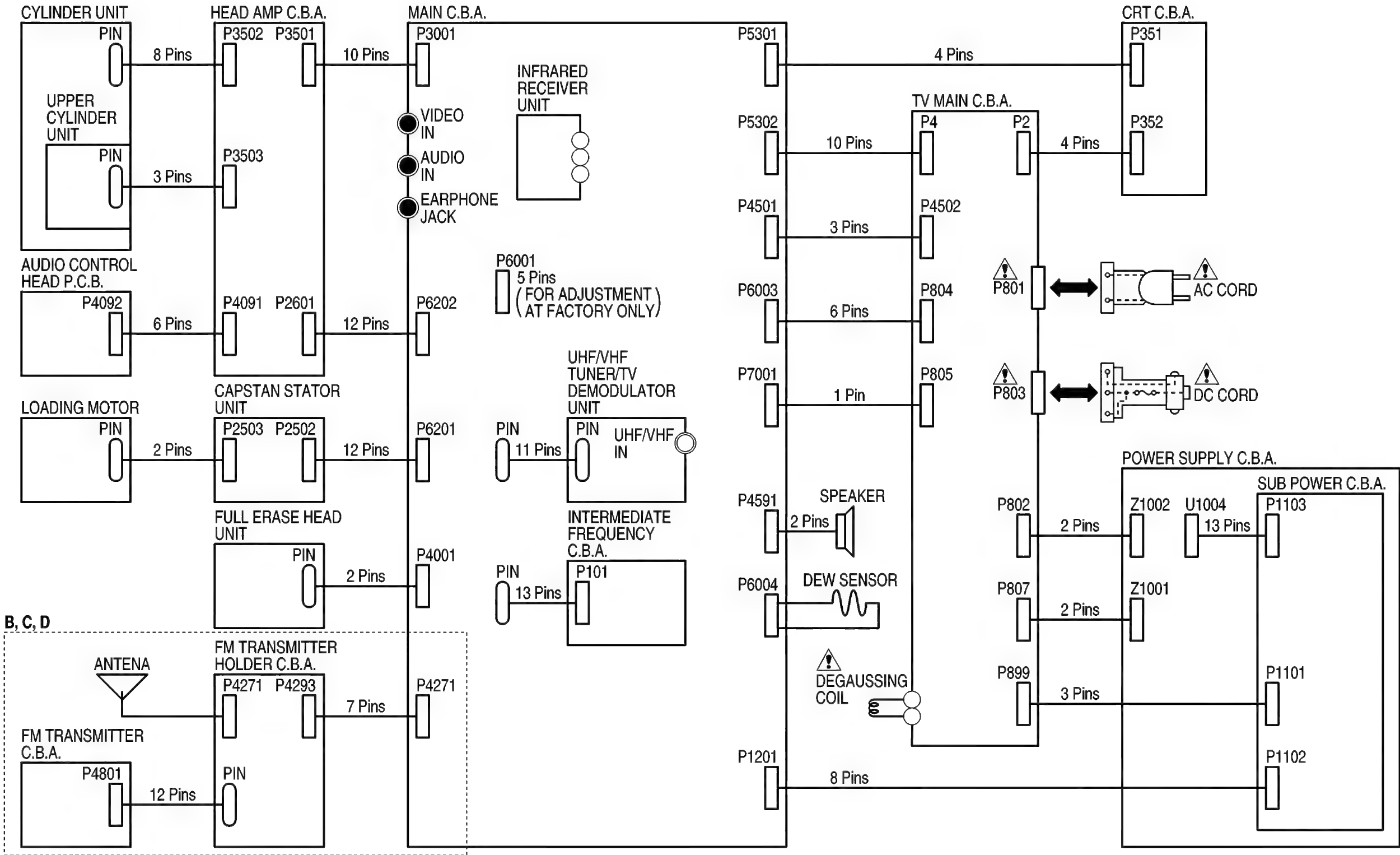
INTERCONNECTION SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:  
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D
Not Used	Z

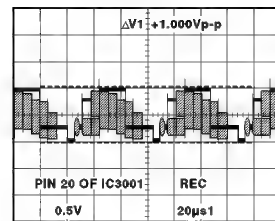




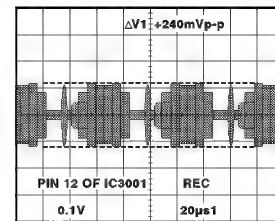
## 8.11. SIGNAL WAVEFORMS

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

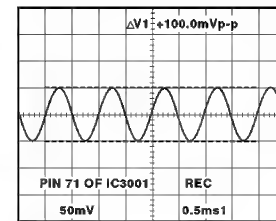
## MAIN C.B.A.



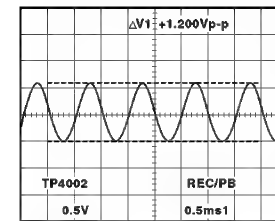
WF1



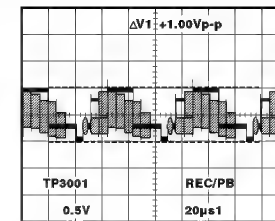
WF6



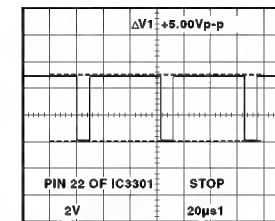
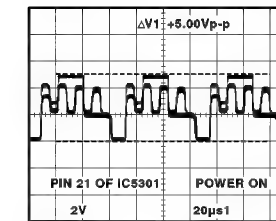
WF9



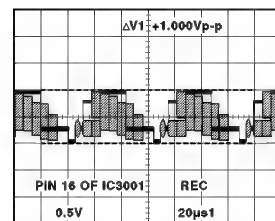
WF14



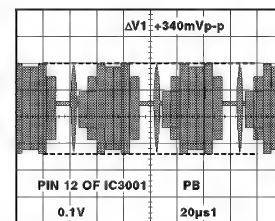
WF18

WF21  
(BLUE BACK)

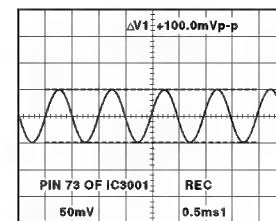
WF27



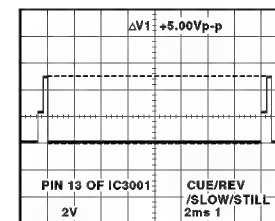
WF2



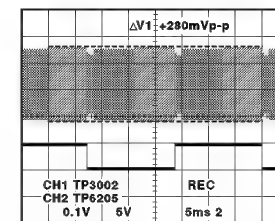
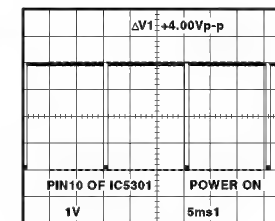
WF6



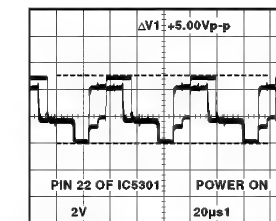
WF10



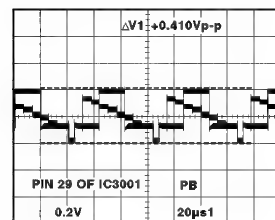
WF15

CH1 WF19  
CH2 WF34

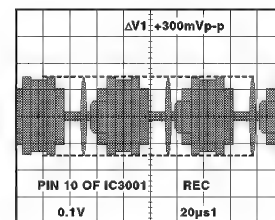
WF23



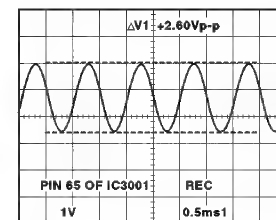
WF28



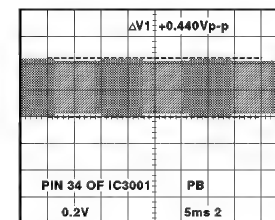
WF3



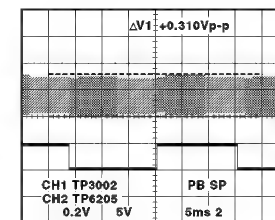
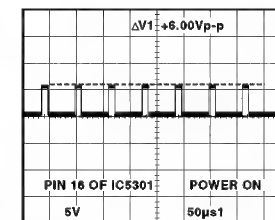
WF7



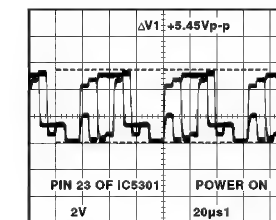
WF11



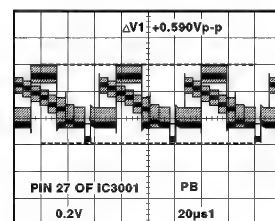
WF16

CH1 WF19  
CH2 WF34

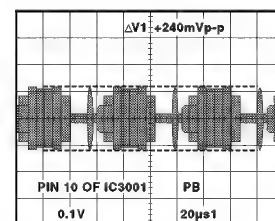
WF24



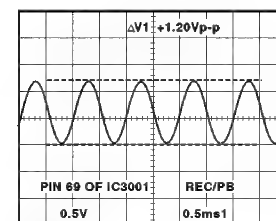
WF29



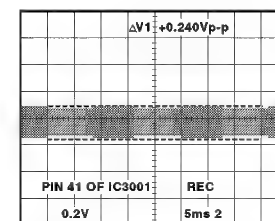
WF4



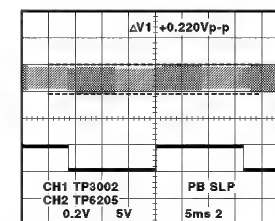
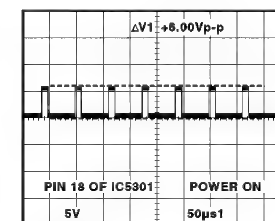
WF7



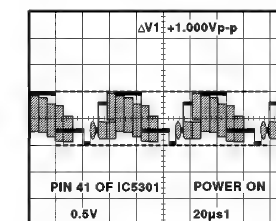
WF12



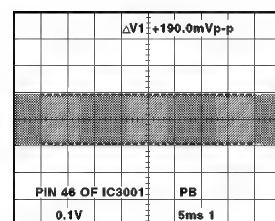
WF17

CH1 WF19  
CH2 WF34

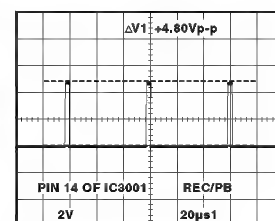
WF25



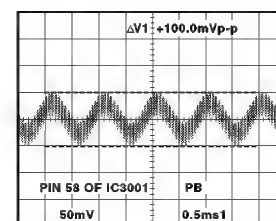
WF30



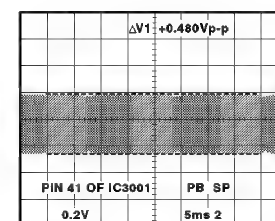
WF5



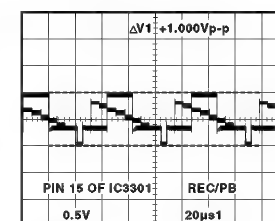
WF8



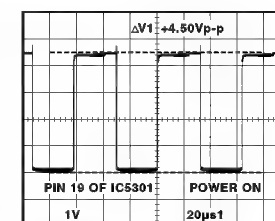
WF13



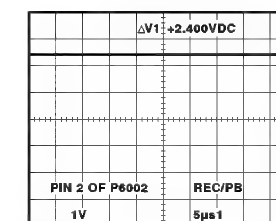
WF17



WF20



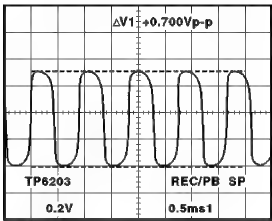
WF26



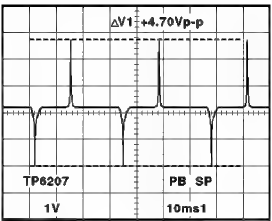
WF31

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

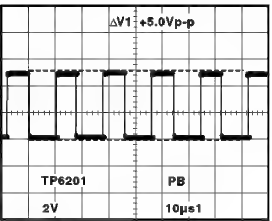
POWER SUPPLY C.B.A.



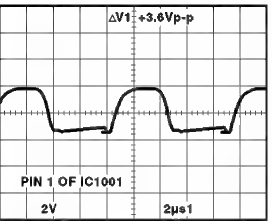
WF32



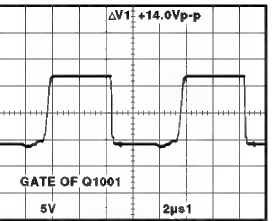
WF35



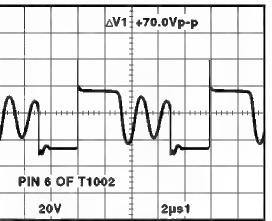
WF38



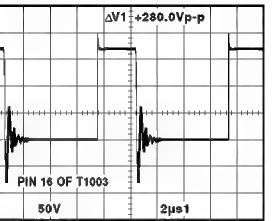
WF40



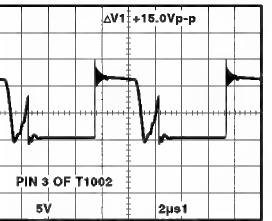
WF44(DC IN)



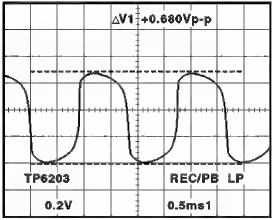
WF47(AC IN)



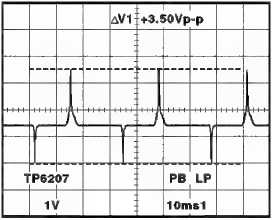
WF49(DC IN)



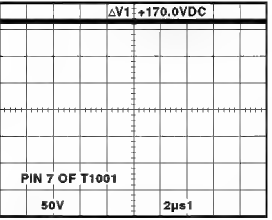
WF52(DC IN)



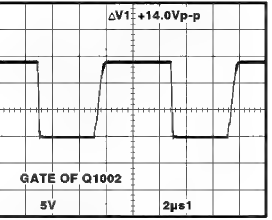
WF32



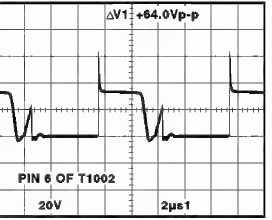
WF35



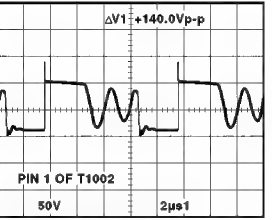
WF41



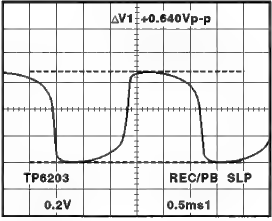
WF45(AC IN)



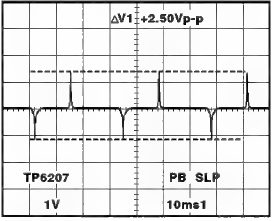
WF47(DC IN)



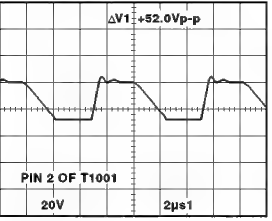
WF50(AC IN)



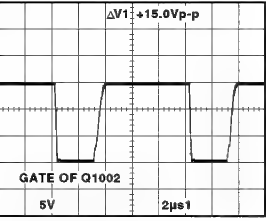
WF32



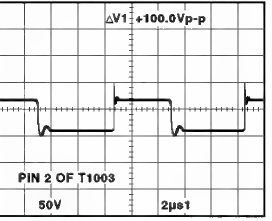
WF35



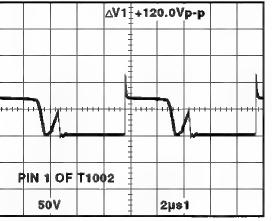
WF42



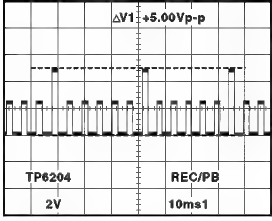
WF45(DC IN)



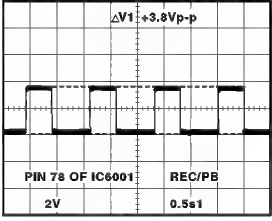
WF48(AC IN)



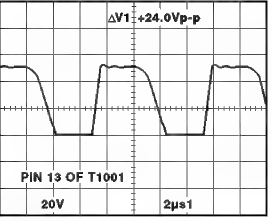
WF50(DC IN)



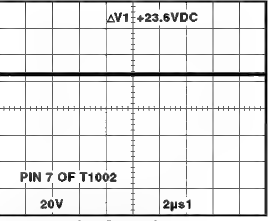
WF33



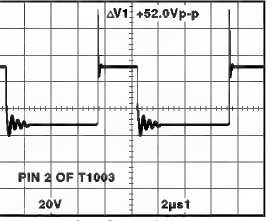
WF36



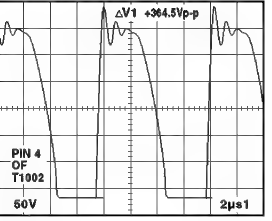
WF43



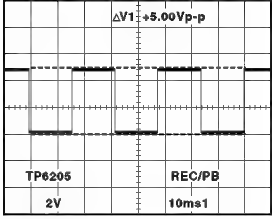
WF46(AC IN)



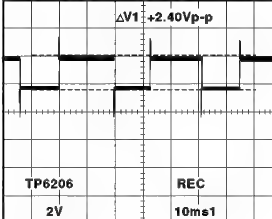
WF48(DC IN)



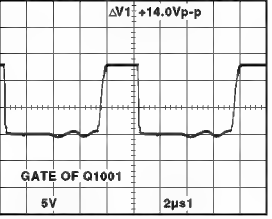
WF51



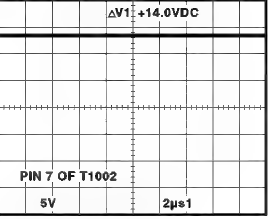
WF34



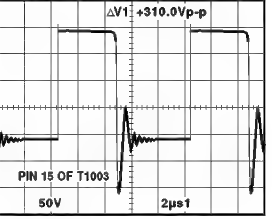
WF37



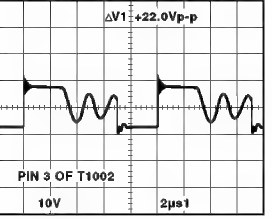
WF44(AC IN)



WF46(DC IN)



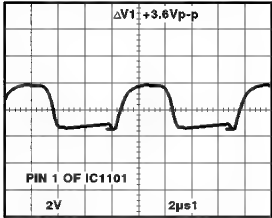
WF49(AC IN)



WF52(AC IN)

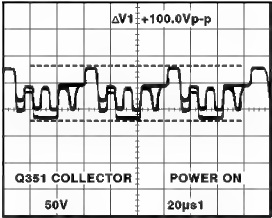
NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

SUB POWER C.B.A.



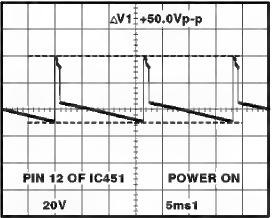
WF54

CRT C.B.A.



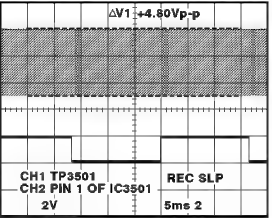
WF60

TV MAIN C.B.A.

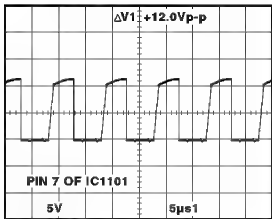


WF70

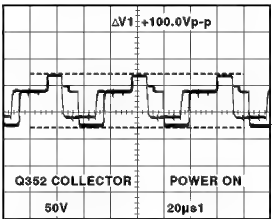
HEAD AMP C.B.A.



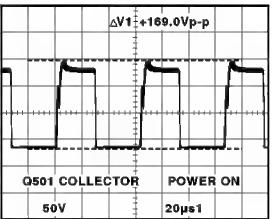
CH1 WF80  
CH2 WF81



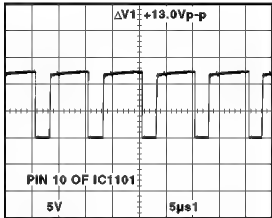
WF55



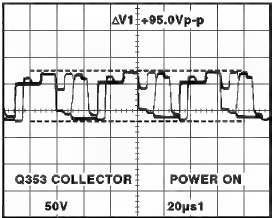
WF61



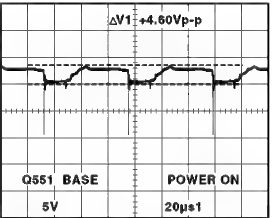
WF71



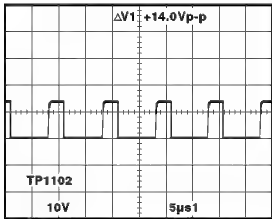
WF56



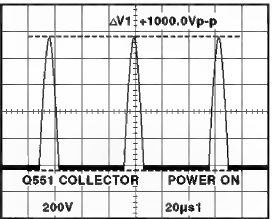
WF62



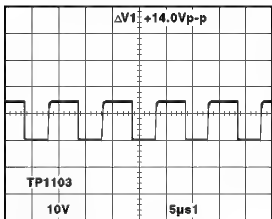
WF72



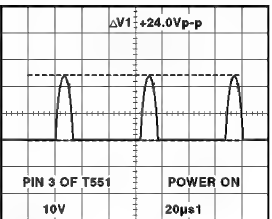
WF57



WF73



WF58



WF74

8.12. VOLTAGE CHART

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (POWER SUPPLY/VIDEO/AUDIO SECTION)

MODE PIN NO.	STOP	MODE PIN NO.	STOP	MODE PIN NO.	STOP	MODE PIN NO.	STOP	MODE PIN NO.	STOP	MODE PIN NO.	STOP
IC3001		55	0	16	---	11	5.2	Q3002		Q5601	
1	---	56	4.4	17	5.0	12	2.4	E	1.6	E	4.6
2	3.4	57	2.6	18	4.4	13	4.2	C	5.2	C	9.2
3	---	58	2.6	19	0	14	6.2	B	2.6	B	4.0
4	5.1	59	2.6	20	0	15	4.4	Q3310		Q5901	
5	4.3	60	2.6	21	0	16	0.7	E	0	E	9.2
6	---	61	2.6	22	0	17	0	C	4.2	C	11.9
7	5.2	62	0	23	---	18	0.1	B	0	B	9.8
8	5.2	63	0	24	---	19	1.8	Q3311			
9	2.2	64	---	25	---	20	0	E	1.7	TP1201	14.4
10	2.8	65	2.6	26	---	21	2.8	C	0	TP3001	1.7
11	0.8	66	2.6	27	---	22	3.0	B	1.0	TP3002	2.6
12	2.8	67	2.6	28	---	23	3.0	Q3314		TP3003	3.4
13	0.4	68	5.2	29	0	24	9.1	E1	1.5	TP3004	2.0
14	0.5	69	2.6	30	0	25	3.8	C1	5.1	TP3005	0
15	0	70	0.3	31	0	26	9.0	B1	2.1	TP3006	0
16	3.1	71	2.6	32	0	27	0	E2	1.5	TP3007	0.7
17	2.4	72	2.6	33	---	28	0	C2	1.7	TP3008	2.4
18	---	73	2.6	34	---	29	0	B2	1.9	TP3009	0
19	2.6	74	0	35	---	30	5.8	Q3315		TP3010	3.1
20	3.1	75	0	36	5.2	31	6.2	E	5.1	TP3011	2.8
21	5.1	76	0	37	0	32	3.6	C	5.0	TP3012	3.0
22	2.0	77	0	38	---	33	7.3	B	1.7	TP3301	3.2
23	2.6	78	2.1	39	---	34	8.1	Q4001		TP3302	2.7
24	2.6	79	3.0	40	0	35	5.2	E	5.2	TP4002	0
25	2.0	80	2.0	41	0	36	4.3	C	5.2	TP4003	0
26	2.6	81	---	42	---	37	9.7	B	4.5	TP4501	0
27	2.0	82	---	43	4.9	38	9.0	Q4002		TP4505	1.6
28	0	83	2.6	44	3.6	39	0.2	E	0	TP4507	14.8
29	1.9	84	2.5	45	0	40	1.5	C	0	TP4591	1.6
30	1.9	IC3201		46	0	41	0.2	B	0.8	TP4706	0
31	2.0	1	2.8	47	0	42	0	Q4003		TP5301	3.5
32	2.4	2	5.2	48	---	43	0.1	E	0	TP5302	3.5
33	2.7	3	0	IC4501		44	5.3	C	0	TP5303	3.5
34	3.0	4	2.9	1	---	45	0.4	B	0.8	TP5304	11.9
35	---	5	3.0	2	0	46	2.7	Q4101		TP5305	2.7
36	2.5	6	-3.3	3	6.4	47	5.2	E	0	TP5306	0
37	1.5	7	2.2	4	0	48	0.3	C	0.2	TP5307	0
38	4.4	8	3.3	5	1.9			B	0.2	TP5308	1.5
39	0	IC3301		6	5.9	Q1201		Q4154		TP5309	3.4
40	3.8	1	0	7	5.9	E	11.9	E	0	TP5310	7.2
41	0	2	2.7	8	0	C	14.4	C	2.1	TP5311	3.5
42	0	3	---	9	6.0	B	12.4	B	0	TP5401	4.0
43	3.4	4	0	10	14.1	Q1202		Q4171		TP5402	1.5
44	2.6	5	2.3	IC5301		E	0	E	0	TP5501	0.7
45	2.6	6	2.3	1	2.7	C	12.4	C	0	TP5502	0.1
46	2.6	7	5.2	2	3.0	B	0.7	B	2.1	TP5503	1.8
47	5.1	8	---	3	3.8	Q1203		Q5301		TP5504	0
48	---	9	---	4	5.1	E	5.3	E	2.7	TP5505	0
49	2.7	10	---	5	2.1	C	6.7	C	9.2	TP5506	5.7
50	---	11	---	6	2.2	B	5.9	B	3.4		
51	5.1	12	---	7	6.1	Q3001		Q5302			
52	2.5	13	5.2	8	0.4	E	1.6	E	6.3		
53	2.5	14	3.1	9	0	C	0	C	9.2		
54	0	15	2.9	10	4.0	B	1.0	B	6.9		

**NOTE:**  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

## MAIN C.B.A. (SYSTEM CONTROL/SERVO SECTION)

MODE PIN NO.	REC	PLAY
IC2601		
1	14.1	14.2
2	14.1	14.2
3	14.7	14.7
4	1.2	1.2
5	5.3	5.3
6	1.0	1.0
7	1.1	1.1
8	0.6	0.6
9	2.7	2.8
10	1.5	1.5
11	0	0
12	3.9	3.9
13	4.0	4.0
14	4.0	4.0
15	0.1	0.1
16	14.1	14.2
IC6001		
1	0	0
2	0	0
3	0	0
4	0	2.6
5	2.4	2.4
6	0	0
7	0	0
8	0	0
9	2.5	2.5
10	0	2.4
11	0	5.1
12	0	4.0
13	0.1	5.3
14	5.2	0
15	0	0
16	---	---
17	0	0
18	---	---
19	---	---
20	5.2	0
21	0	0
22	---	---
23	2.6	2.6
24	2.6	2.6
25	4.5	4.5
26	5.2	5.2
27	5.1	5.1
28	5.1	5.1
29	2.6	2.6
30	5.2	5.2
31	0	0
32	5.2	5.2
33	5.3	5.3
34	5.2	5.2
35	0	0
36	0	0
37	0	0

MODE PIN NO.	REC	PLAY
38	5.2	5.3
39	0	0
40	0	0
41	5.2	5.2
42	0	0
43	5.2	5.2
44	---	---
45	4.5	4.5
46	0.3	0.3
47	5.1	5.1
48	5.2	5.2
49	0.1	0
50	5.2	0
51	1.3	1.3
52	5.2	5.2
53	0	0
54	0	0
55	0	0
56	0	0
57	0.4	0.4
58	5.3	5.3
59	5.2	5.2
60	5.3	5.3
61	5.2	5.3
62	0	0
63	5.1	0
64	5.0	0
65	5.2	5.3
66	0	0
67	0	0
68	5.2	5.3
69	5.2	5.3
70	5.2	5.3
71	0	0
72	2.6	2.6
73	5.3	5.3
74	5.3	5.3
75	5.3	5.3
76	5.3	5.3
77	0	0
78	5.1	5.2
79	5.2	5.2
80	5.2	5.2
81	3.8	3.0
82	0	0
83	0	0
84	0	2.1
85	3.0	2.6
86	2.1	2.6
87	2.6	2.6
88	2.6	2.6
89	2.6	2.6
90	2.6	2.6
91	0	0
92	5.2	5.2

MODE PIN NO.	REC	PLAY
93	2.6	2.6
94	2.6	2.6
95	2.6	2.6
96	0	0
97	1.2	1.2
98	1.3	1.3
99	5.2	5.2
100	2.1	2.1
IC6002		
1	1.3	1.3
2	5.2	5.2
3	0	0
4	---	---
IC6003		
1	0	0
2	1.3	1.3
3	0	0
4	---	---
IC6004		
1	0	0
2	0	0
3	0	0
4	0	0
5	4.9	4.9
6	5.0	5.0
7	0	0
8	5.1	5.1
Q6001		
E	0	0
C	5.2	0
B	0	0
Q6002		
E	12.1	12.1
C	12.1	0.5
B	11.2	12.1
Q6003		
E	1.1	0.4
C	11.2	12.1
B	5.0	0
Q6009		
E	0	0
C	5.1	5.1
Q6010		
E	0	0
C	5.1	5.1
Q6251		
E	10.9	10.9
C	14.2	14.2
B	11.4	11.4
Q6252		
E	14.2	14.2
C	11.4	11.4
B	14.1	14.1

MODE PIN NO.	REC	PLAY
Q6254		
E	0	0
C	14.1	14.1
B	6.5	6.5
Q6301		
E	0	0
C	5.2	5.2
B	5.2	5.2
Q6501		
E	23.3	23.3
C	5.7	5.7
B	22.6	22.6
Q6502		
E	0	0
C	22.1	22.1
B	5.2	5.2
Q6503		
E	0	0
C	0.5	0.5
B	0.5	0.5
Q6504		
E	72.7	72.7
C	86.5	86.5
B	0.7	0.7
Q6505		
E	22.8	22.8
C	22.8	22.8
B	22.1	22.1
Q6506		
E	0	0
C	0	0
B	0.6	0.6
Q6507		
E	5.2	5.2
C	5.1	5.1
B	4.5	4.5
Q6511		
E	22.6	22.6
C	22.6	22.6
B	21.9	21.9
Q6512		
E	0	0
C	9.9	9.9
B	0.5	0.5
Q6513		
E	0	0
C	0	0
B	6.7	6.7
Q6514		
E	0	0
C	72.7	72.7
B	0.6	0.6
Q6515		
E	22.8	22.8
C	22.8	22.8

[illegible]

## CAPSTAN STATOR C.B.A.

[illegible]

POWER  
SUPPLY  
C.B.A.

[illegible][illegible]

HEAD AMP  
C.B.A.

[illegible][illegible][illegible]



## 9 CIRCUIT BOARD LAYOUT

### 9.1. MAIN C.B.A.


**MAIN C.B.A. VEPS3099B (A) / VEPS3099A (B, C, D)**

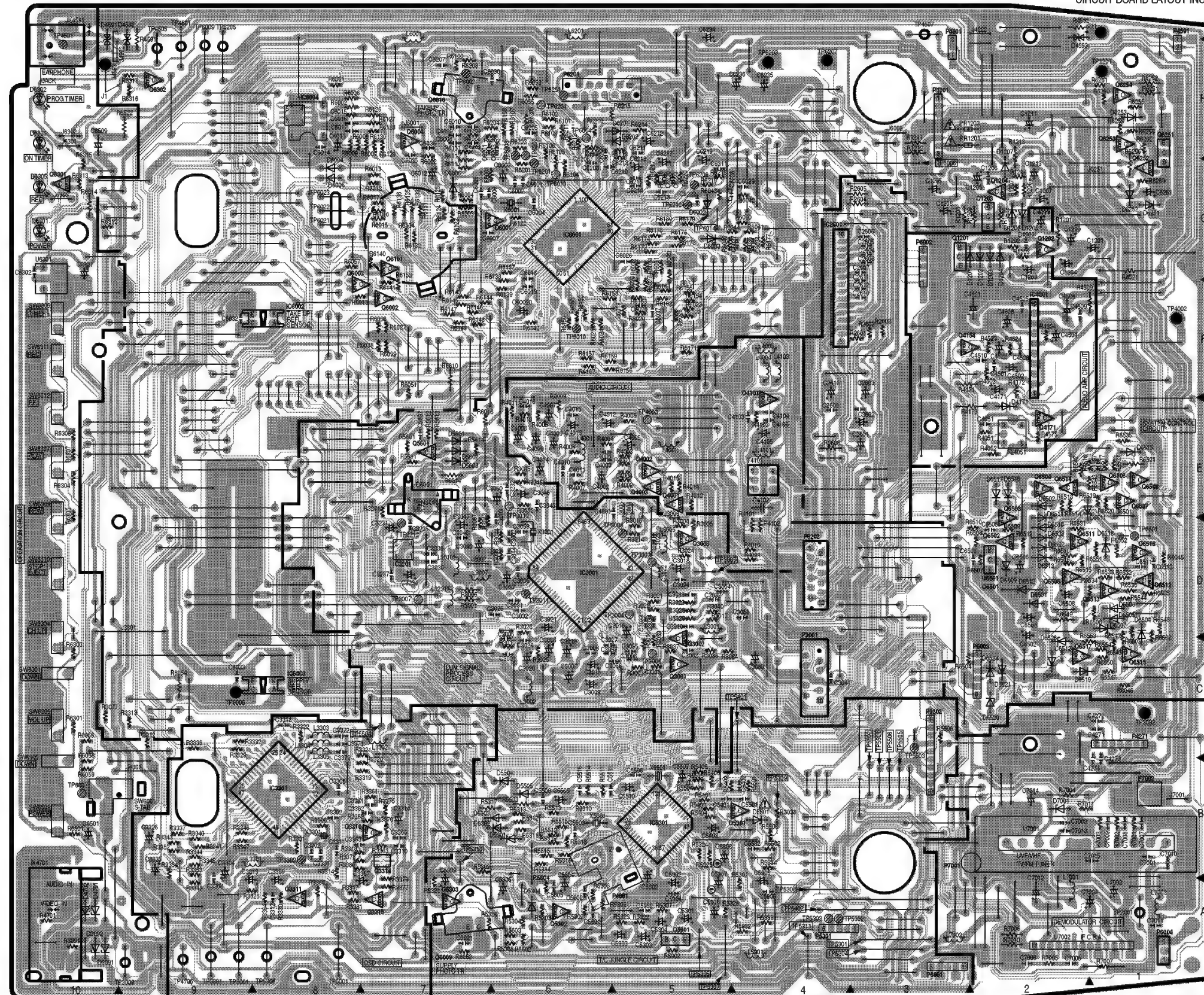
**NOTE:**  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

**NOTE:**  
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.  
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:  
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D

**IMPORTANT SAFETY NOTICE:**  
COMPONENTS IDENTIFIED BY THE SIGN  HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

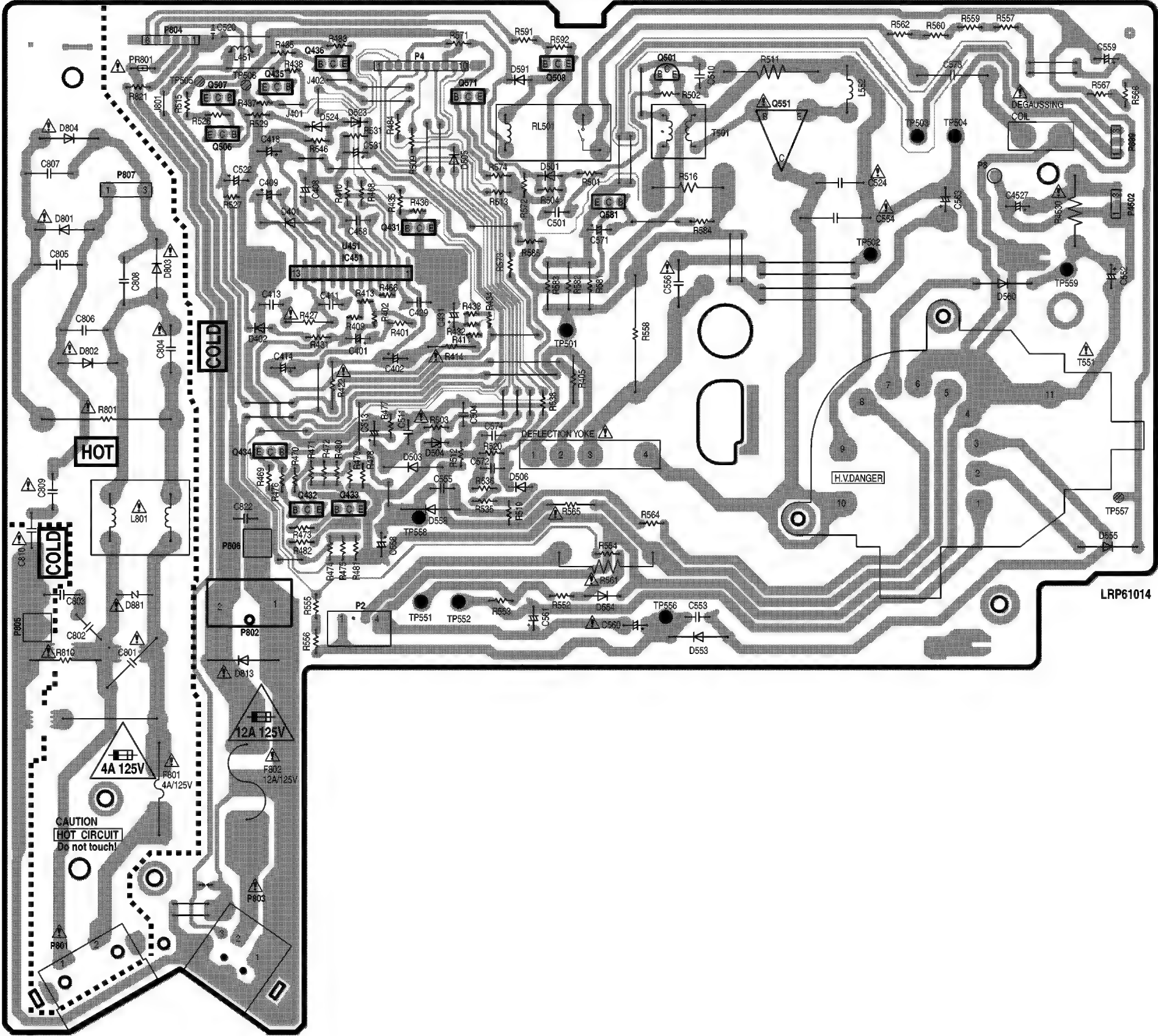


VJBS3099


9.2. TV MAIN C.B.A.

TV MAIN C.B.A. LRP61014A

HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.



NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:  
COMPONENTS IDENTIFIED BY THE SIGN  HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE 4A 125V FUSE.  
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES  
D'INCENDIE N' UTILISER QUE DES FUSIBLE DE MEME  
TYPE 4A 125V

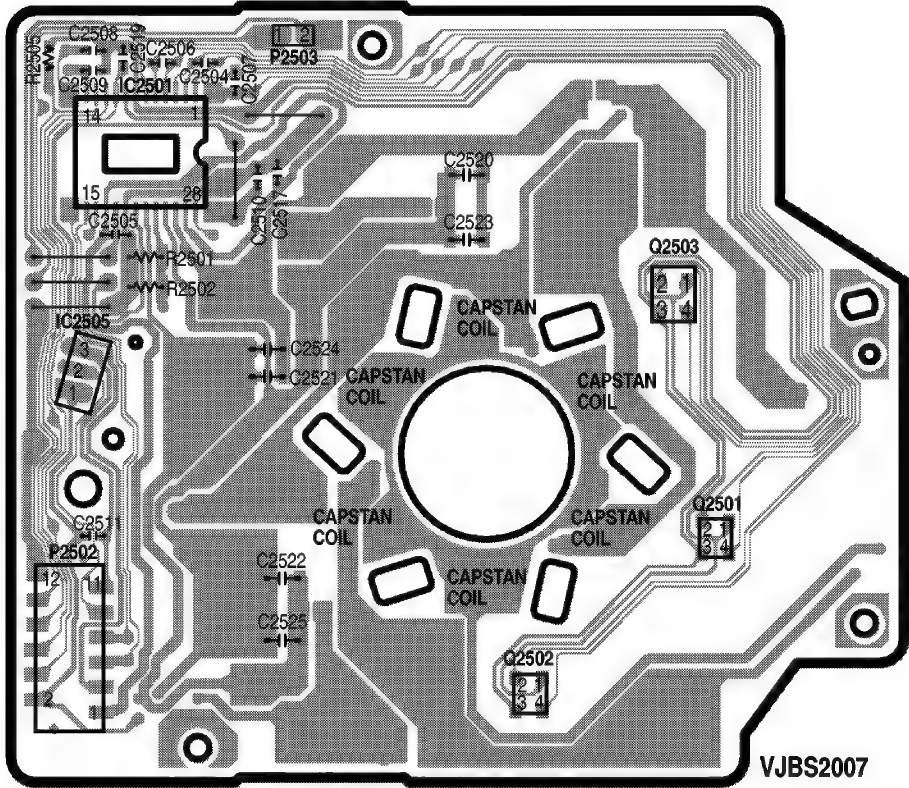
CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE 12A 125V FUSE.  
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES  
D'INCENDIE N' UTILISER QUE DES FUSIBLE DE MEME  
TYPE 12A 125V

NOTE:  
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.



9.3. CAPSTAN STATOR C.B.A.

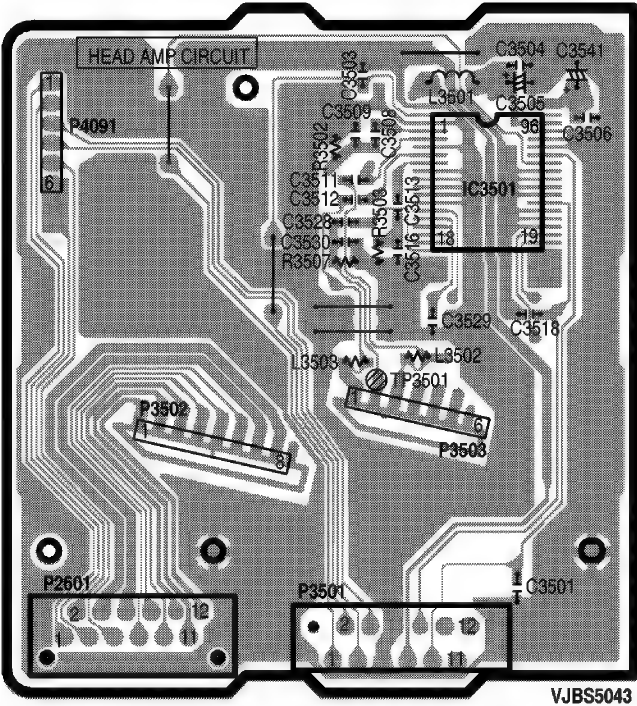
CAPSTAN STATOR C.B.A. VEMS0342



- NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.
- NOTE:  
WHEN INSTALLING THE IC2501(AN3845SC) OR CAPSTAN STATOR C.B.A., BE SURE  
TO APPLY SILICON GREASE(VFK1301). REFER TO "CAPSTAN STATOR C.B.A."  
OF MACHANISM SECTION IN DISASSEMBLY/ASSEMBLY PROCEDURES.
- NOTE:  
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.
- NOTE:  
THE FOLLOWING PARTS ON THE CAPSTAN STATOR C.B.A. ARE NOT SUPPLIED SEPARATELY.  
PLEASE ORDER AND REPLACE WITH THE CIRCUIT BOARD ASSEMBLY INSTEAD OF INDIVIDUAL PARTS.  
(Q2501, Q2502, Q2503, CAPSTAN COIL)

9.4. HEAD AMP C.B.A.

HEAD AMP C.B.A. VEPS5043A



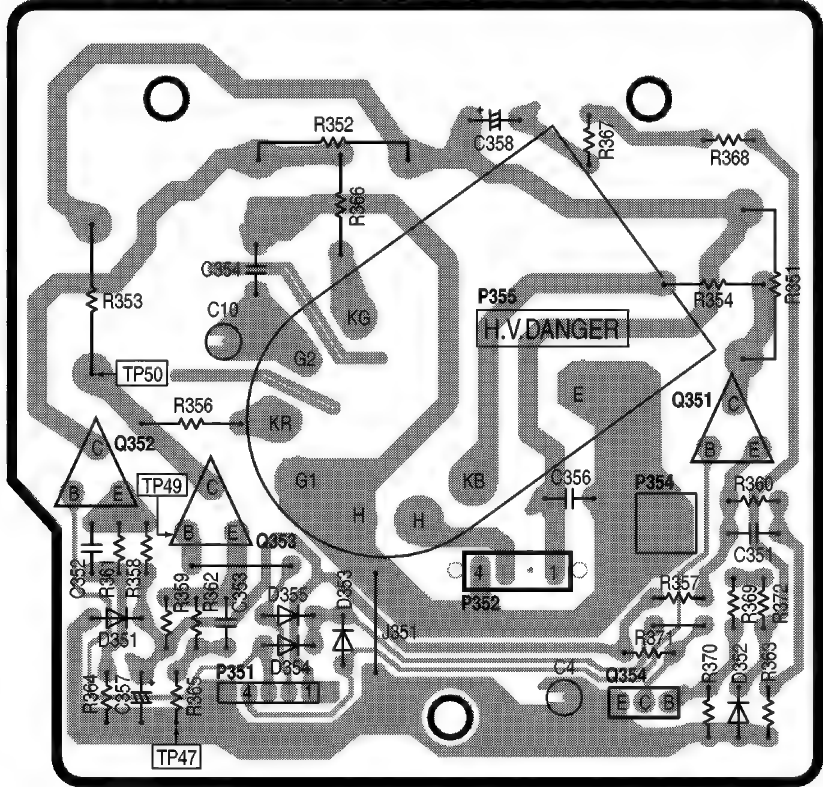
NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:  
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

9.5. CRT C.B.A.

CRT C.B.A. LRP63003A

CAUTION: WHEN SERVICING THIS C.B.A., AVOID TOUCHING HIGH VOLTAGE COMPONENTS.



LRP63003

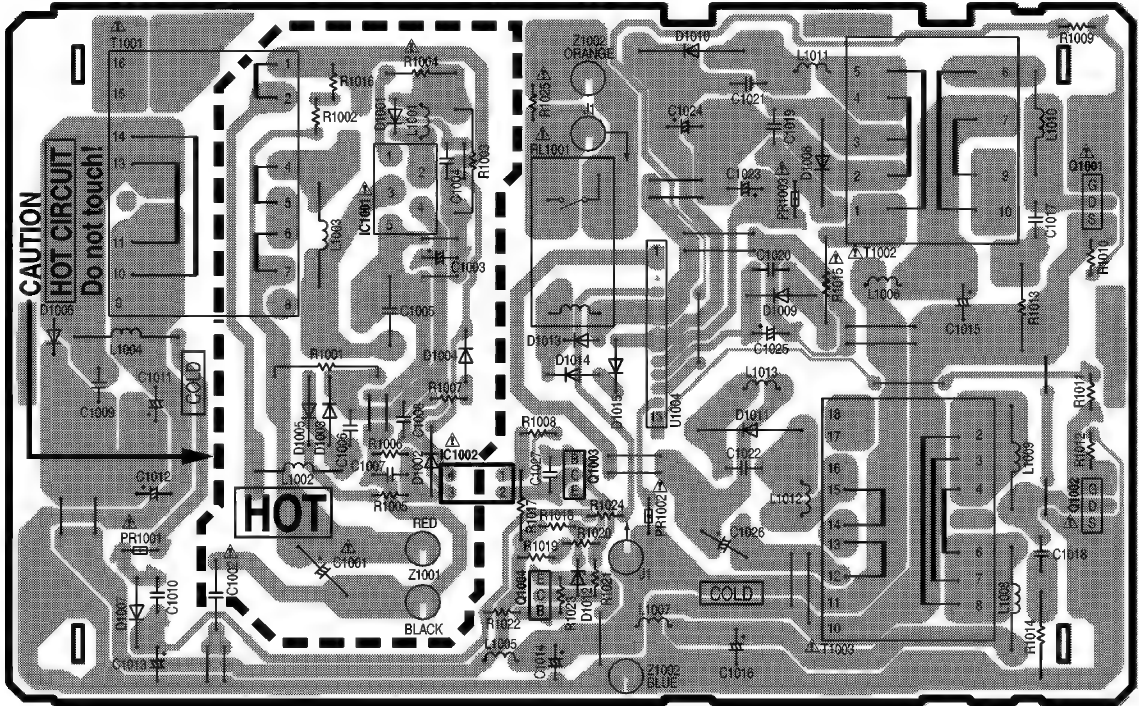
NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:  
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

9.6. POWER SUPPLY C.B.A.

POWER SUPPLY C.B.A. LRM63006A (A) / LRM63006B (B, C, D)

HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.




LRP63006

COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

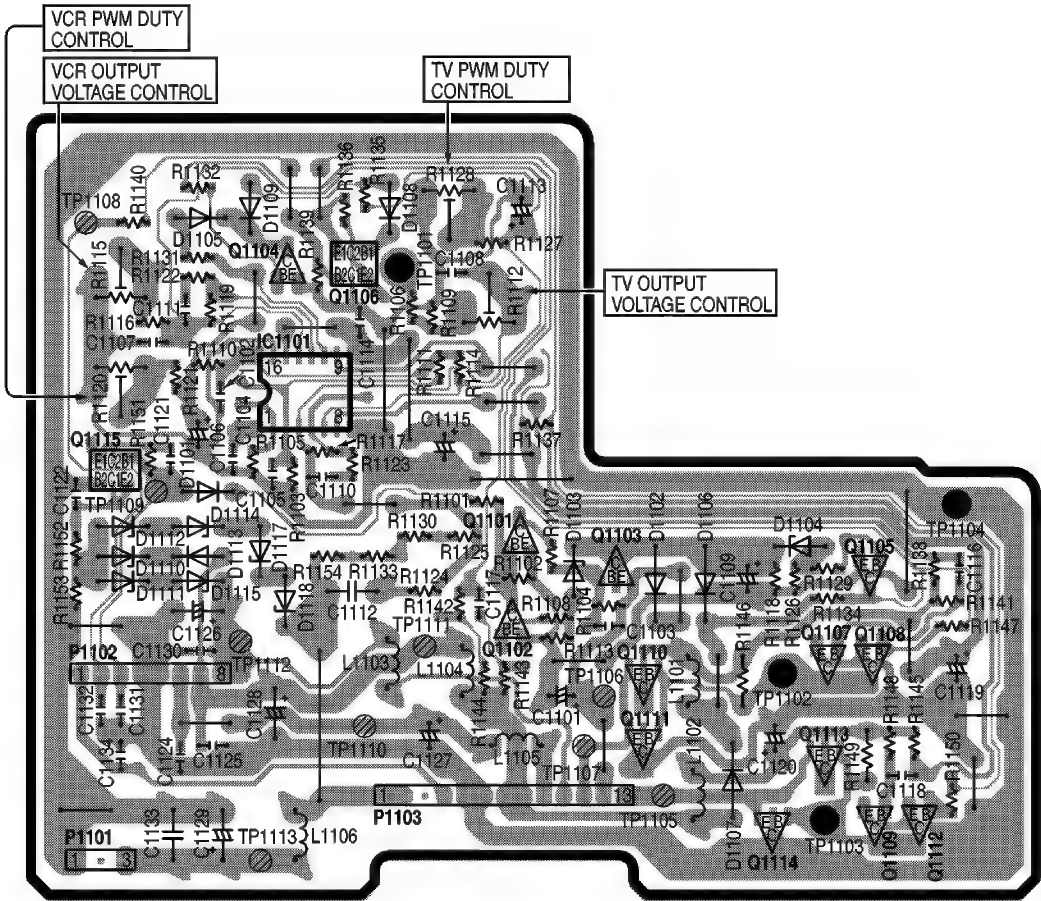
IMPORTANT SAFETY NOTICE:  
COMPONENTS IDENTIFIED BY THE SIGN  HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.

NOTE:  
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.  
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:  
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

9.7. SUB POWER C.B.A.

SUB POWER C.B.A. LRP63007A



LRP63007

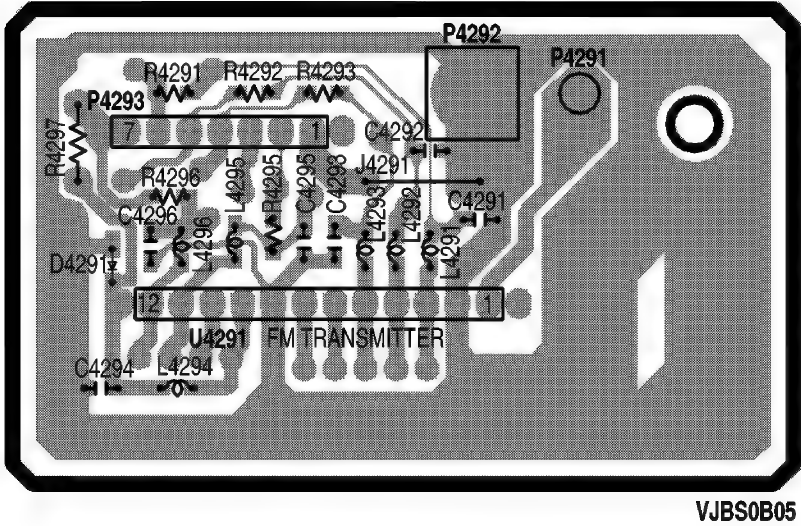
NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:  
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

9.8. FM TRANSMITTER HOLDER C.B.A.

(Model: PV-C921, PV-C921-K, PV-C931W)

FM TRANSMITTER HOLDER C.B.A. VEPS0B05A (B, C, D)



COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D

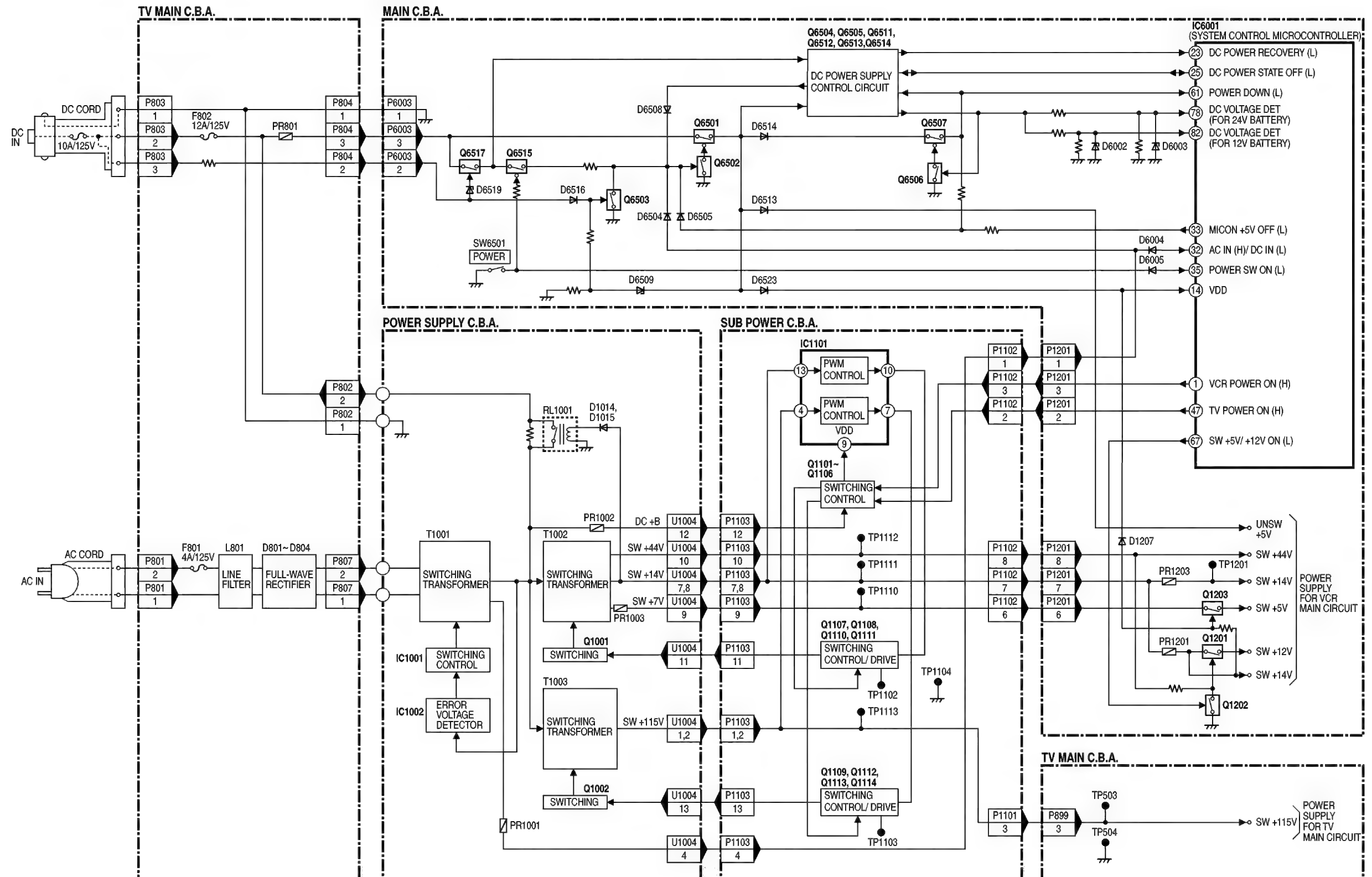
NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:  
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

# 10 BLOCK DIAGRAMS

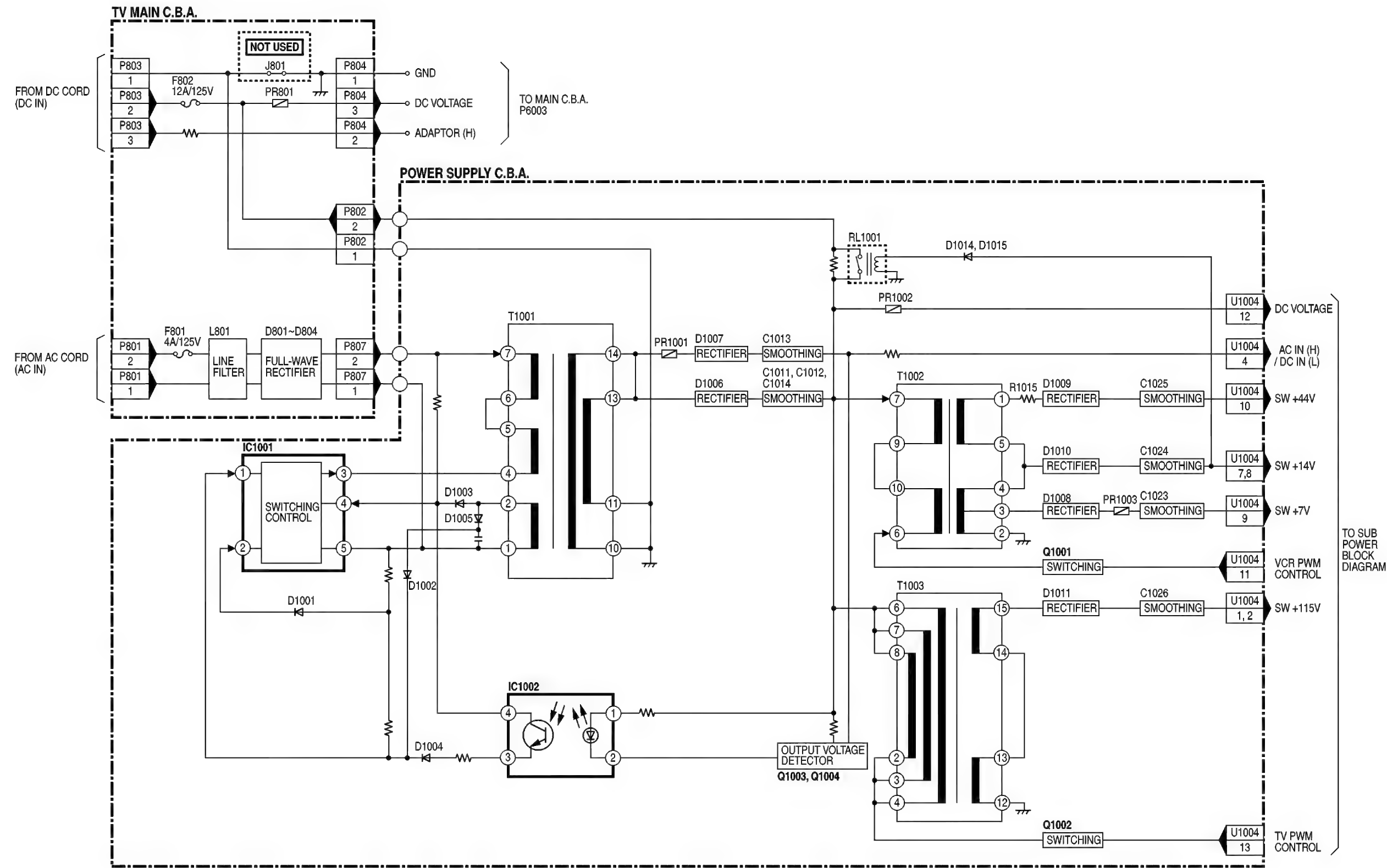
## 10.1. OVERALL BLOCK DIAGRAM FOR POWER SUPPLY

### OVERALL BLOCK DIAGRAM FOR POWER SUPPLY



10.2. POWER SUPPLY BLOCK DIAGRAM

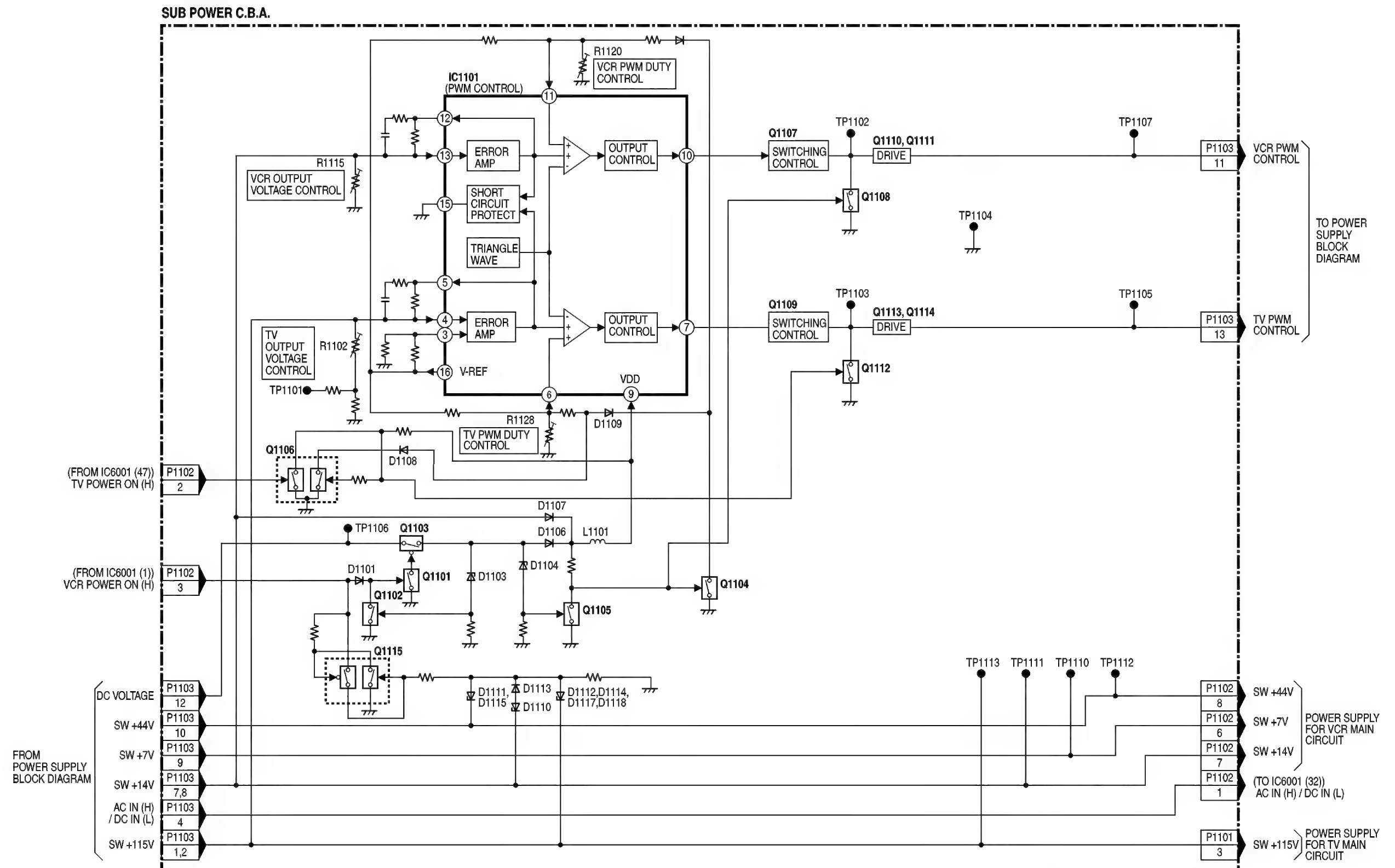
POWER SUPPLY BLOCK DIAGRAM





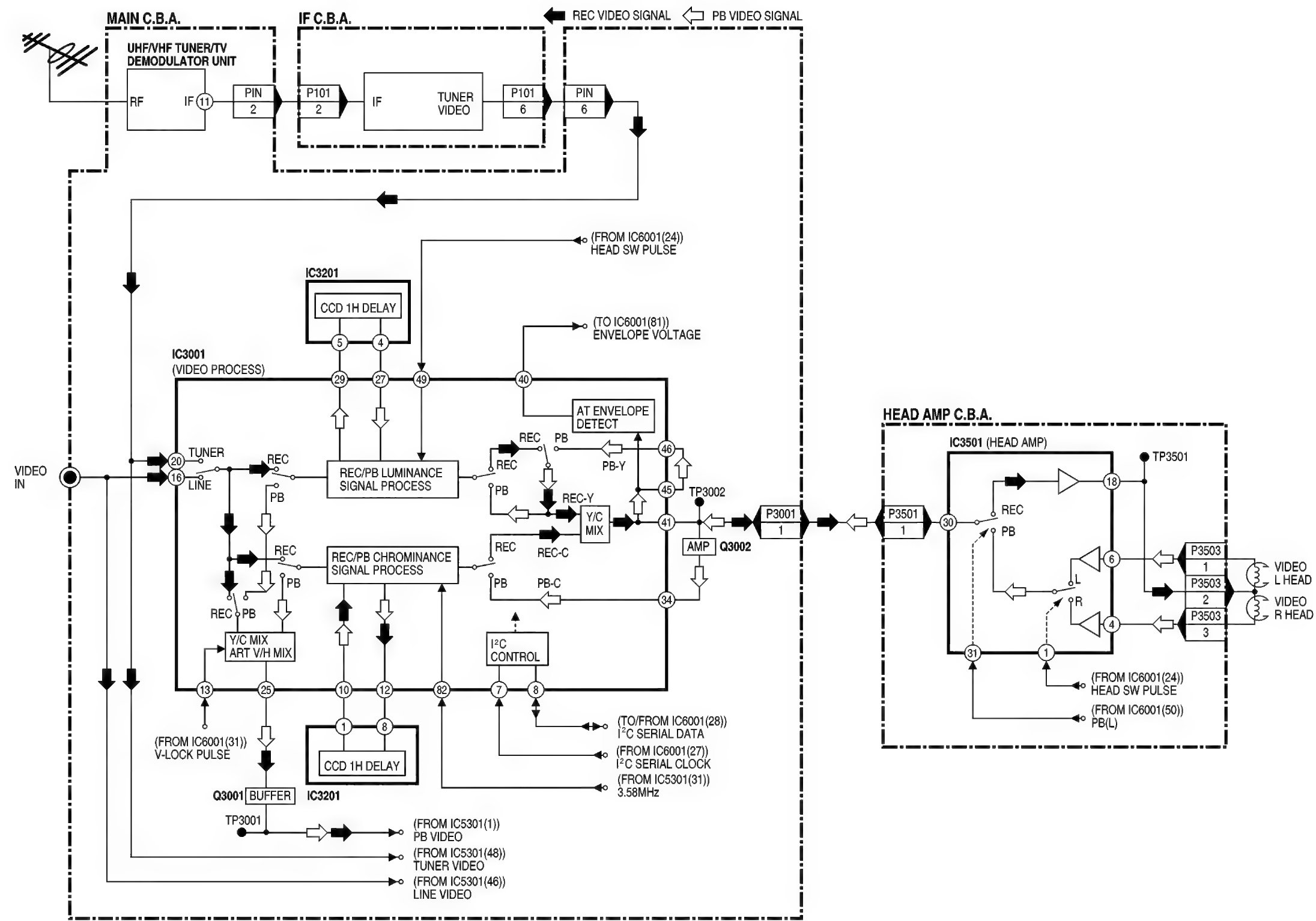
### 10.3. SUB POWER BLOCK DIAGRAM

### SUB POWER SUPPLY BLOCK DIAGRAM



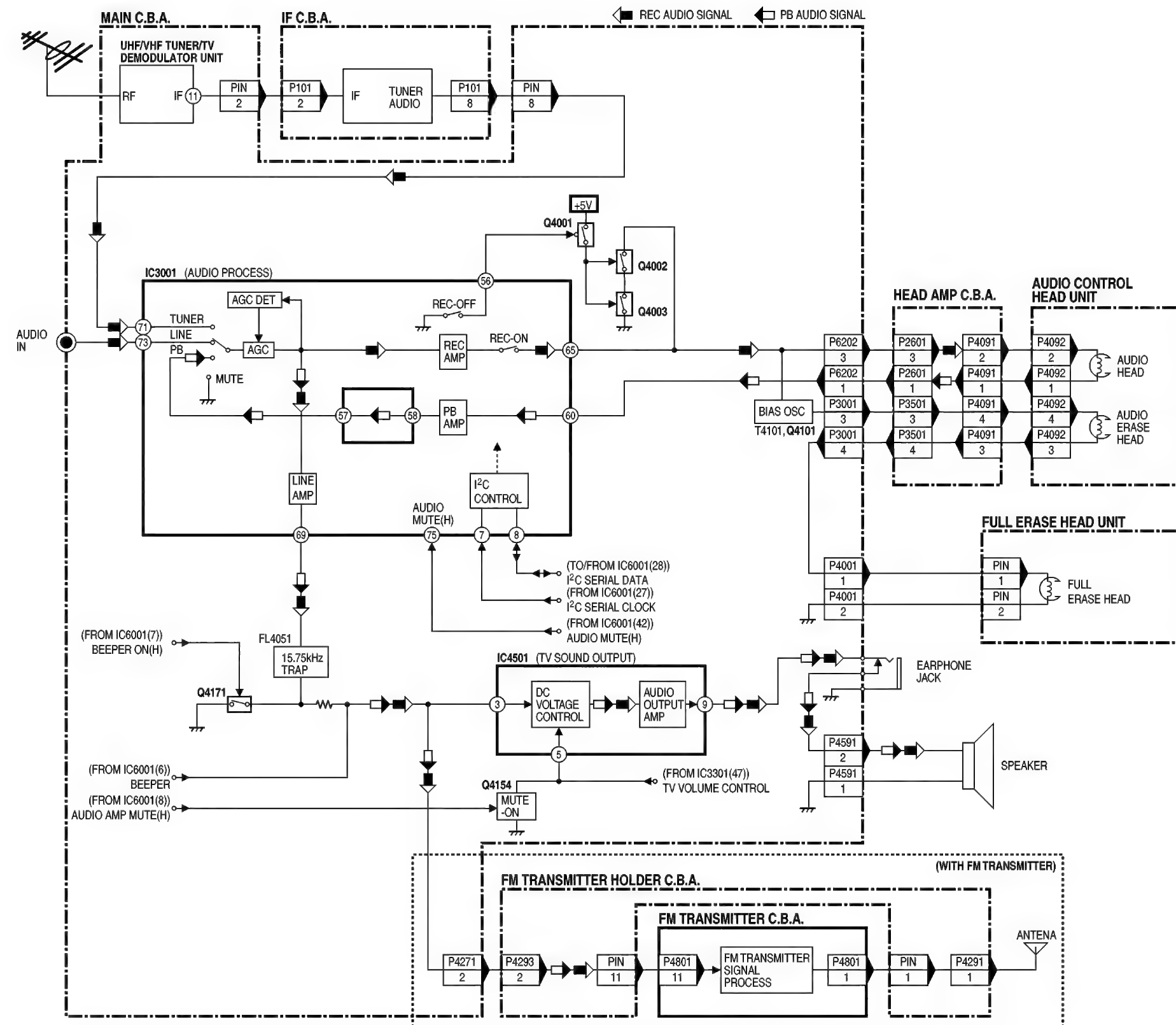
10.4. VIDEO SIGNAL PATH BLOCK DIAGRAM

VIDEO SIGNAL PATH BLOCK DIAGRAM



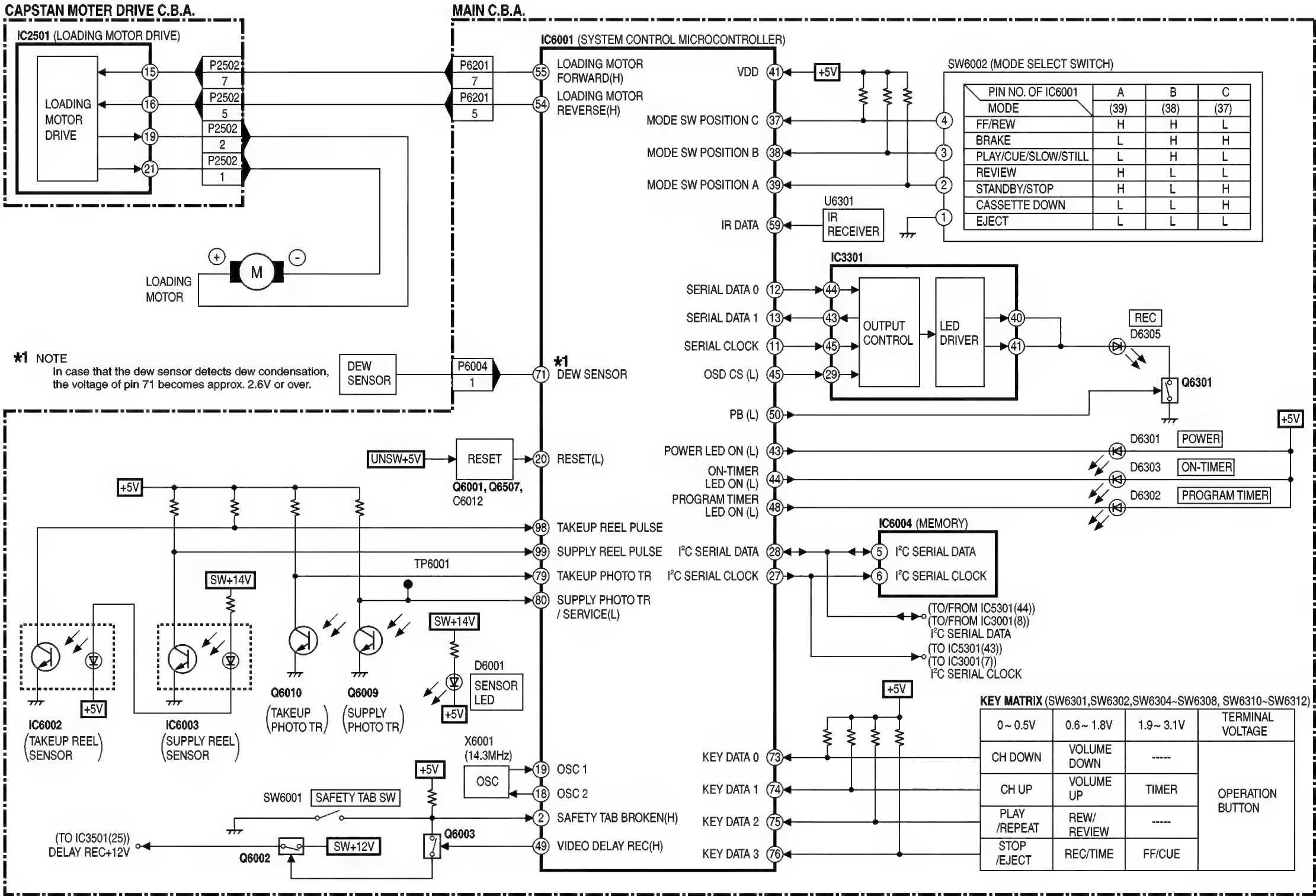
## 10.5. AUDIO SIGNAL PATH BLOCK DIAGRAM

### AUDIO SIGNAL PATH BLOCK DIAGRAM



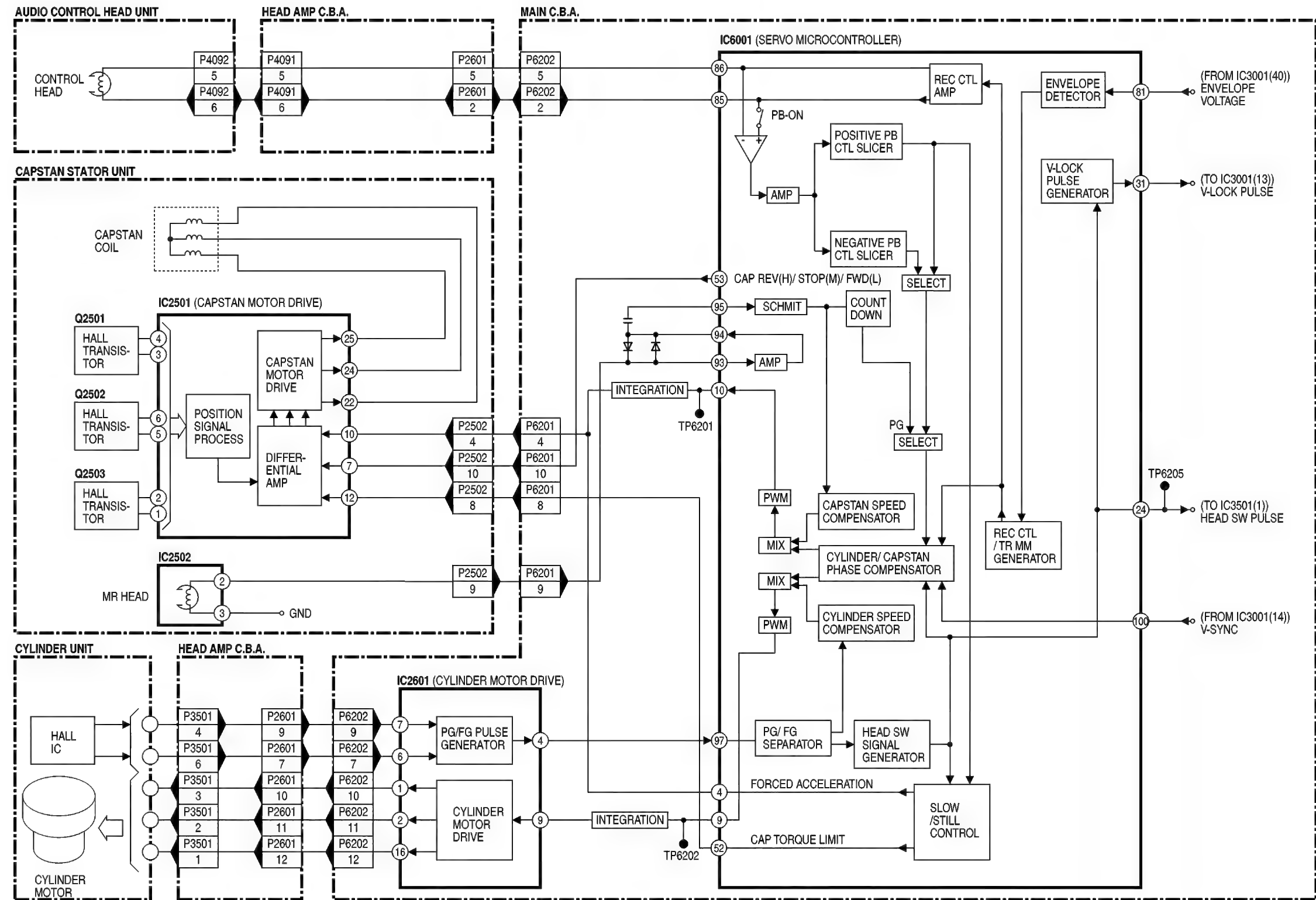
10.6. SYSTEM CONTROL BLOCK DIAGRAM

SYSTEM CONTROL BLOCK DIAGRAM



## 10.7. SERVO BLOCK DIAGRAM

### SERVO BLOCK DIAGRAM





# 11 EXPLODED VIEWS

## 11.1. MECHANISM (TOP) SECTION

### ① MECHANISM (TOP) SECTION

COMPARISON CHART  
OF MODELS & MARKS

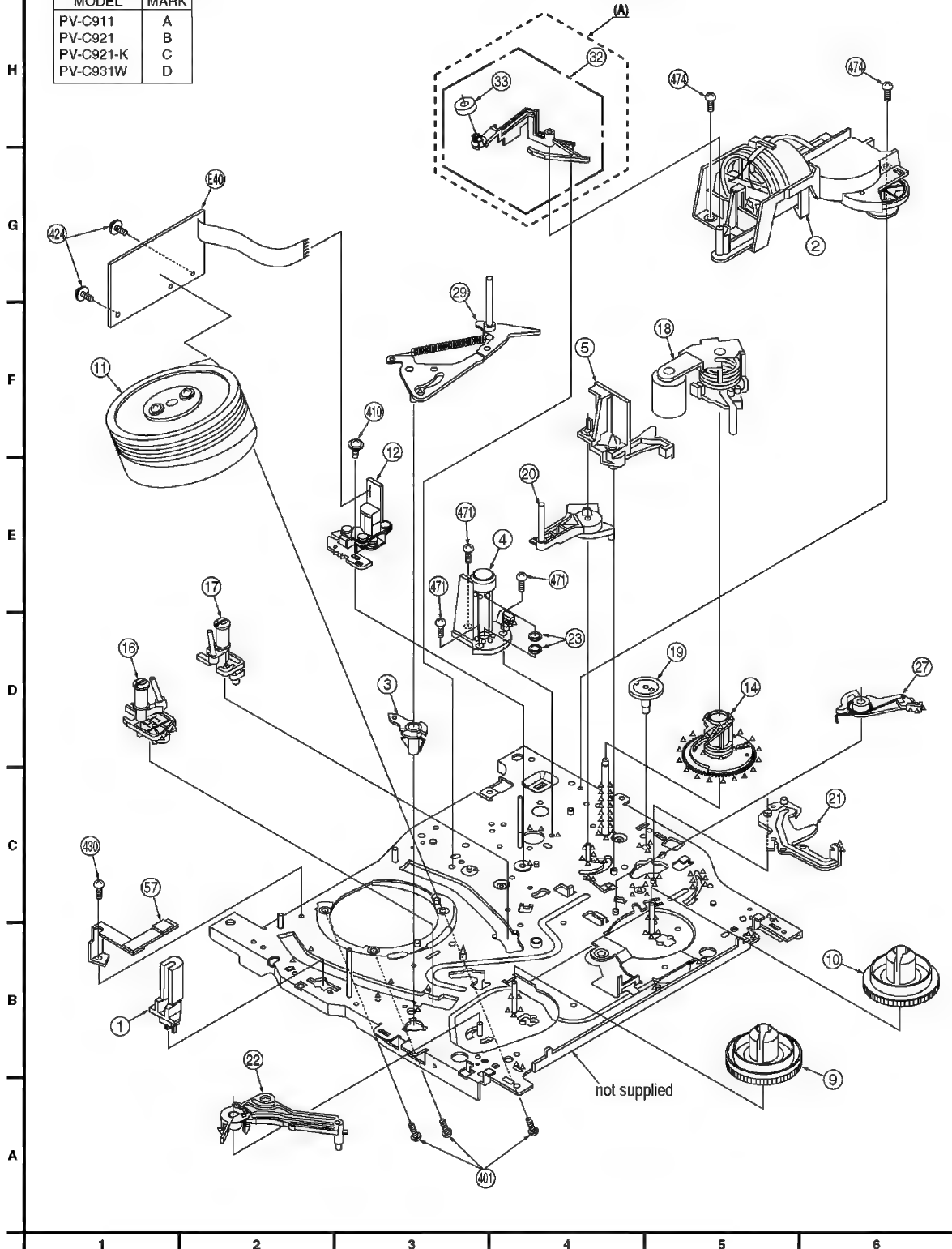
MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D

#### LUBRICATION POINTS

When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
○ ○ ○	Spindle Oil	Purchase from Local Supplier	-----
△ △ △	Grease	Available from Factory	VFKS0081

Note: Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied.  
And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.



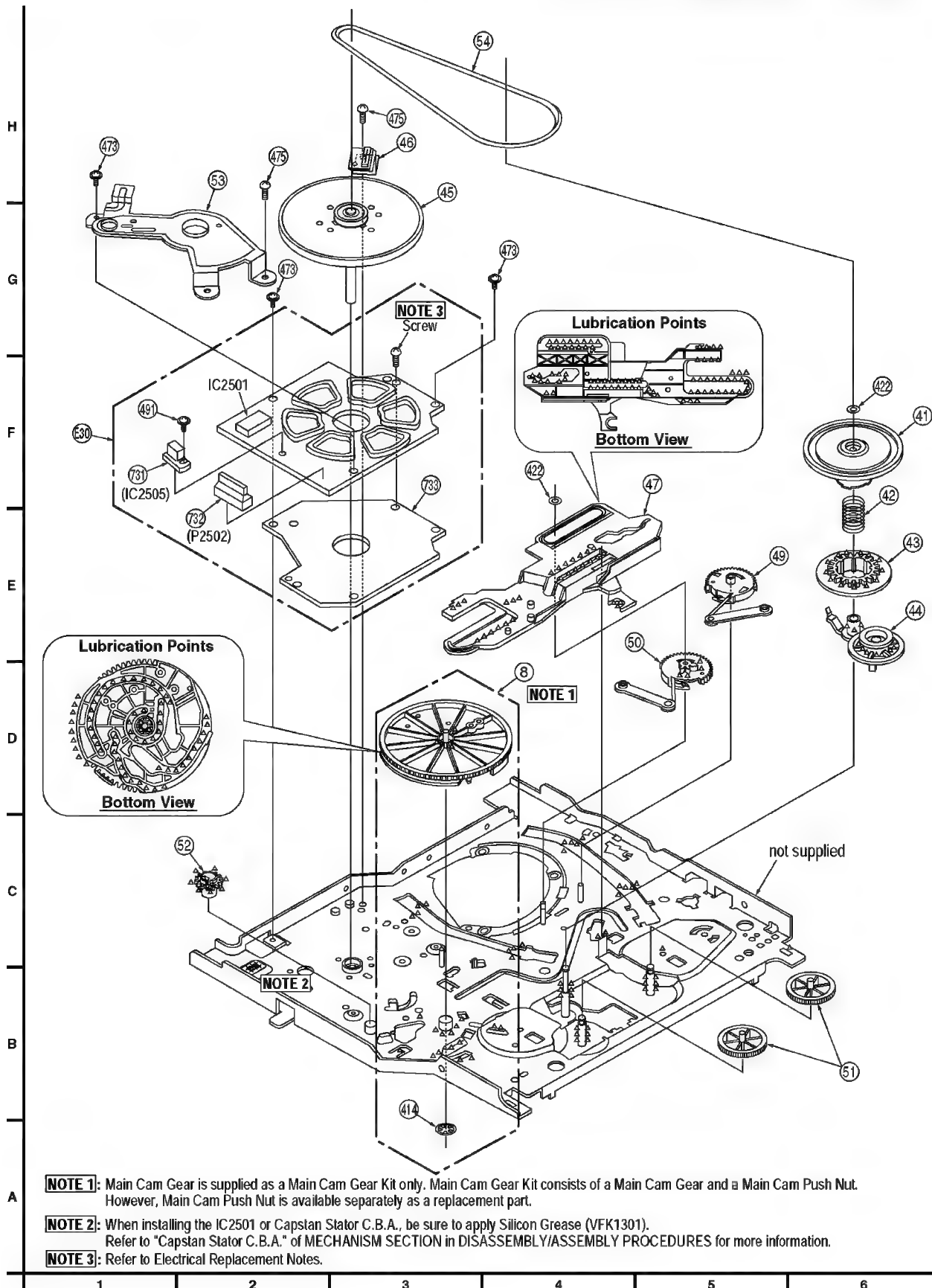
# 11.2. MECHANISM (BOTTOM) SECTION

## ② MECHANISM (BOTTOM) SECTION

### LUBRICATION POINTS

When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
XXX	Silicon Grease	Available from Factory	VFK1301
△△△	Grease	Available from Factory	VFKS0081





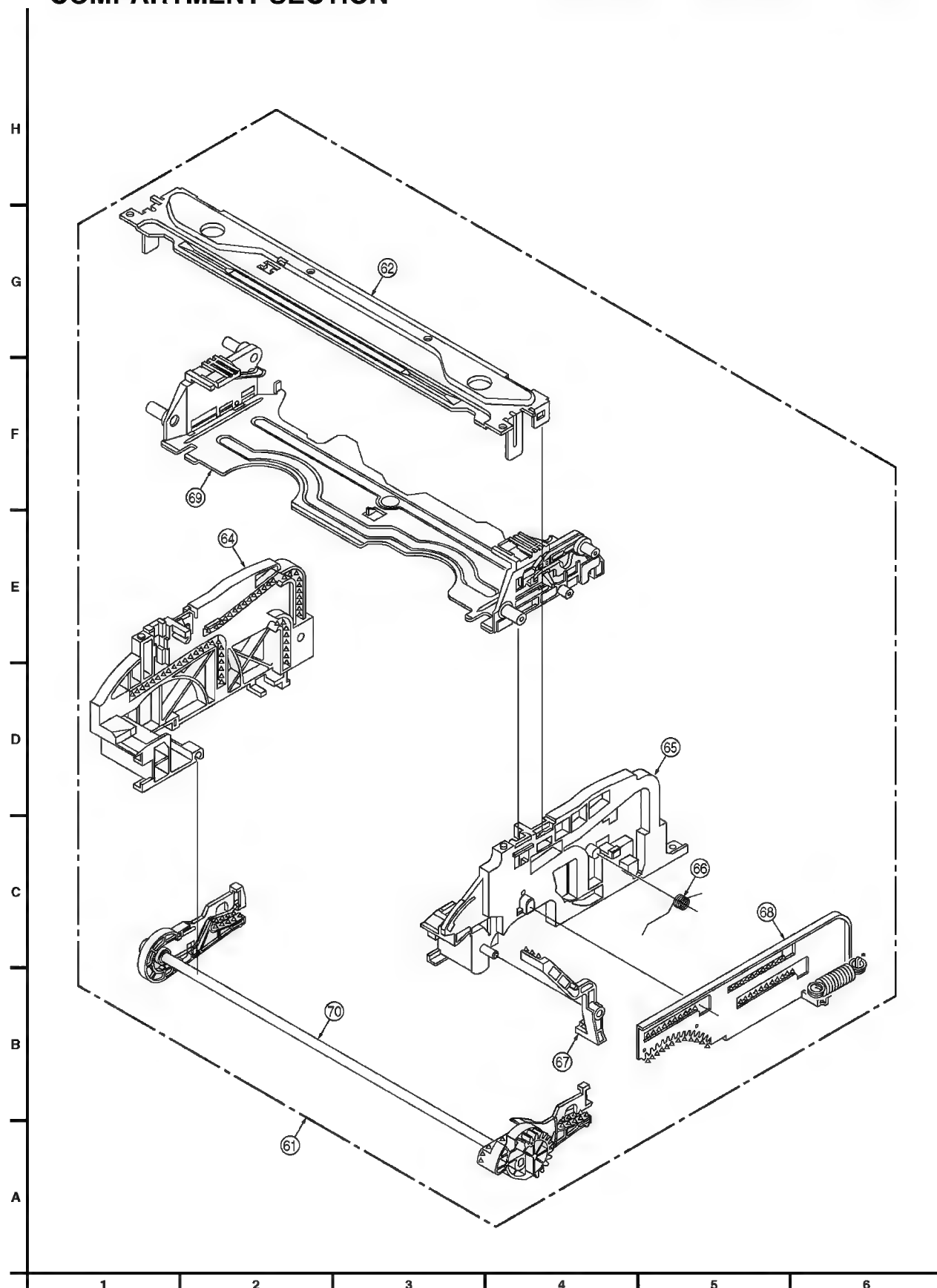
# 11.3. CASSETTE UP COMPARTMENT SECTION

## ③ CASSETTE UP COMPARTMENT SECTION

### LUBRICATION POINTS

When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.


Mark	Kind of Lubricant	Availability	Part Number
△△△	Grease	Available from Factory	VFKS0081

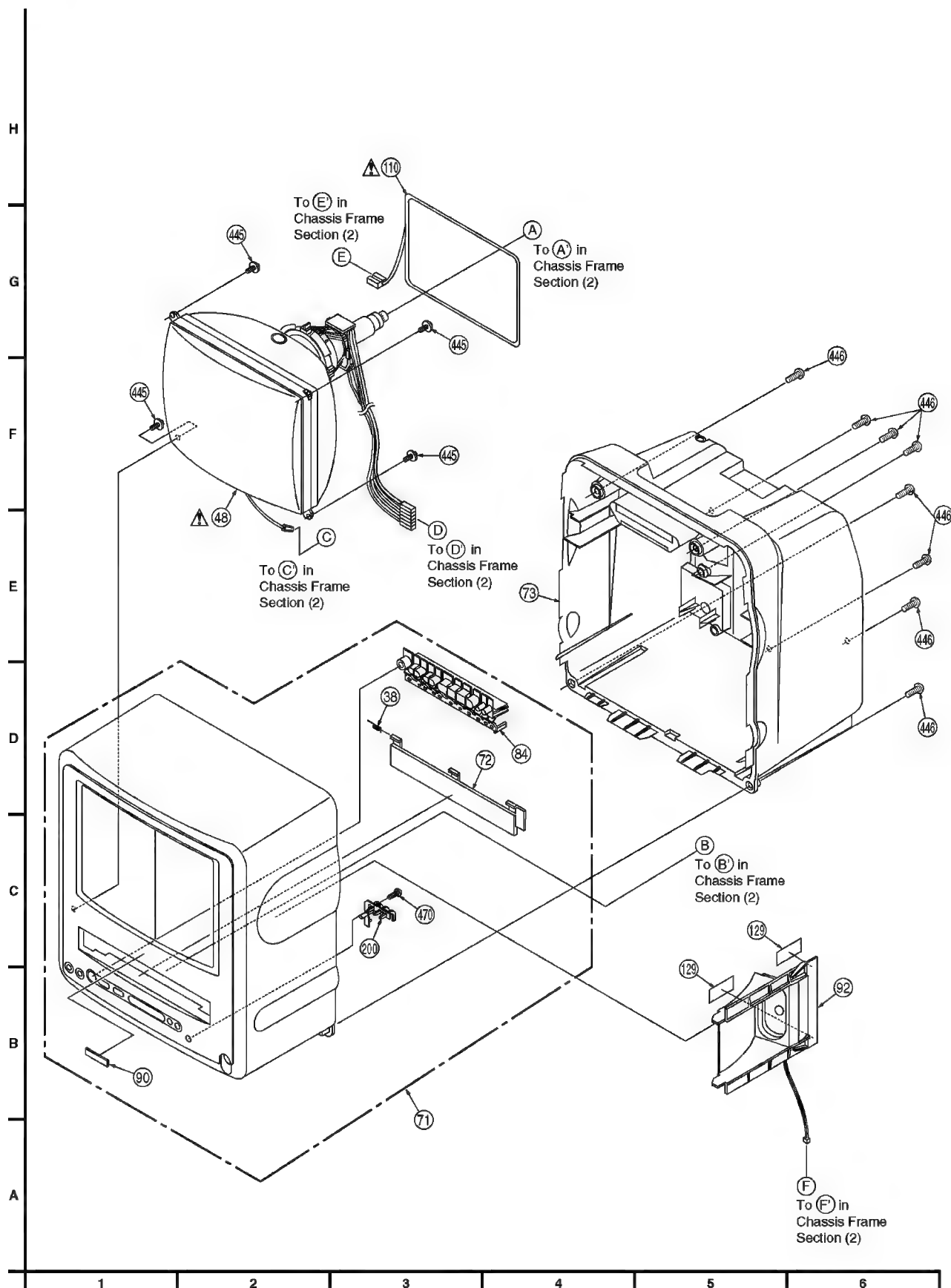


# 11.4. CHASSIS FRAME SECTION (1)


## ④ CHASSIS FRAME SECTION (1)

### IMPORTANT SAFETY NOTICE

COMPONENTS IDENTIFIED BY THE SIGN  HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



## 5 CHASSIS FRAME SECTION (2)


COMPONENTS IDENTIFIED BY THE SIGN  HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

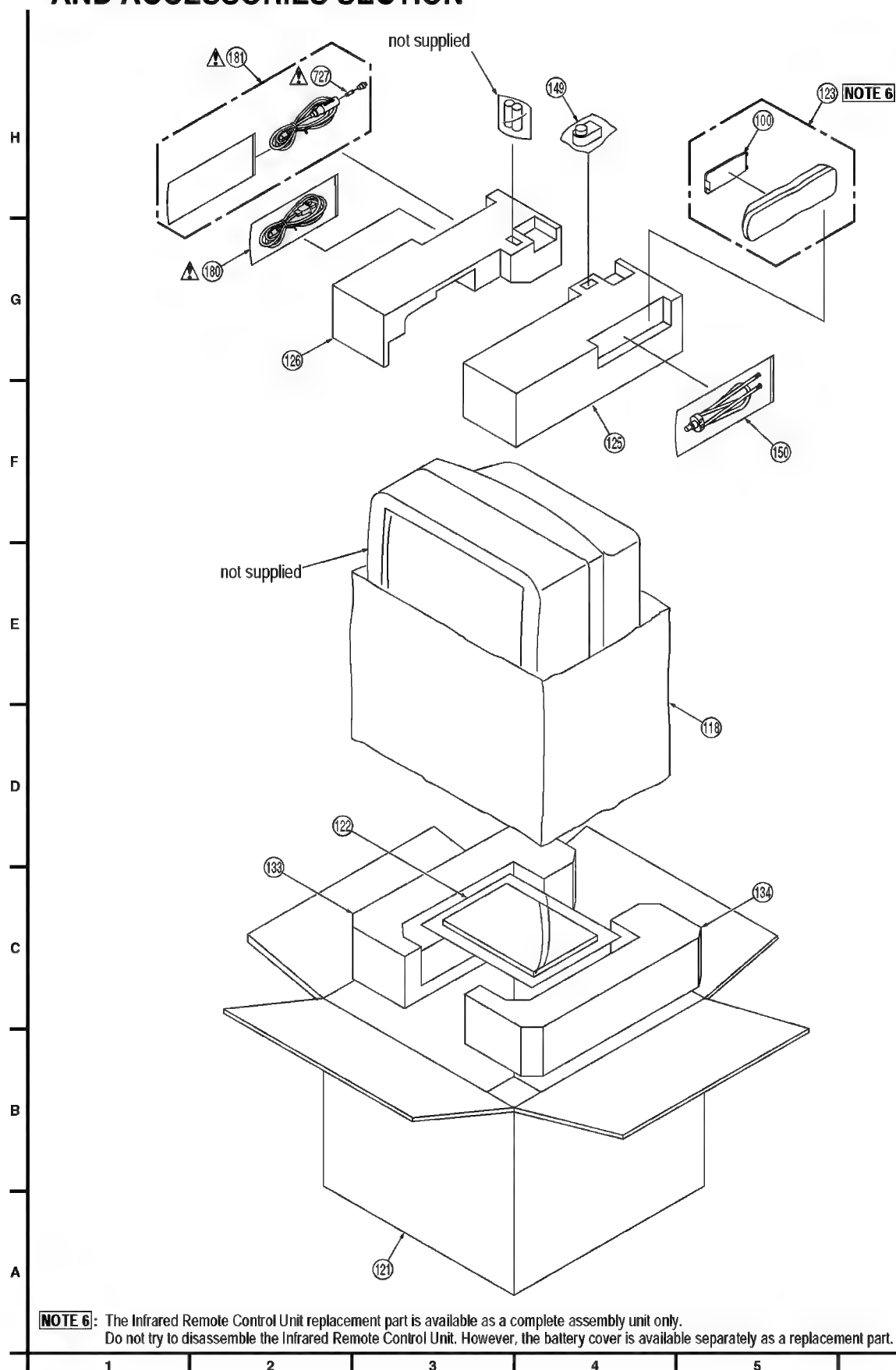


## 11.6. PACKING PARTS AND ACCESSORIES SECTION

### ⑥ PACKING PARTS AND ACCESSORIES SECTION

#### IMPORTANT SAFETY NOTICE

COMPONENTS IDENTIFIED BY THE SIGN  HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



# 12 REPLACEMENT PARTS LISTS

BEFORE REPLACING PARTS, READ THE FOLLOWING:

## 12.1. REPLACEMENT NOTES

### 12.1.1. General Notes

1. Use only original replacement parts:

To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list.

#### 2. IMPORTANT SAFETY NOTICE

Components identified by the sign  $\triangle$  have special characteristics important for safety. When replacing any of these components, use only the specified parts.

#### 3. SPECIAL NOTE

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

4. Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
5. Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.
6. All of parts are supplied from MKA.
7. Item numbers with capital letter E (Example: E10, E20,...) in the Ref. No. column are shown in the exploded views.
8. Parts whose Ref. Nos. are the same are interchangeable as replacement parts. Any of these parts may be ordered and used as a replacement part.

### 12.1.2. Mechanical Replacement Notes

1. Section No. of parts shown in Exploded Views are indicated in the Remarks column.
2. Main Cam Gear is supplied as a Main Cam Gear Kit (Ref. No. 8) only. Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut. However, Main Cam Push Nut is available separately as a replacement part.
3. The Infrared Remote Control Unit (Ref. No. 123) replacement part is available as a complete assembly unit only. Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.
4. Main Cam Push Nut (Ref. No. 414) is not reusable.  
If removed, install a new one.

### 12.1.3. Electrical Replacement Notes

1. Unless otherwise specified;  
All resistors are in  $\Omega$ , K = 1,000  $\Omega$ , M = 1,000 k $\Omega$ .
2. Abbreviation  
RTL: Retention Time Limited  
This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.  
NR: Non Repairable Board Ass'y  
MGF CHIP: Metal Glaze Film Chip  
C CHIP: Ceramic Chip  
COMPLX CMP: Complex Component  
W FLMPRF: Wirewound Flameproof  
C.B.A.: Circuit Board Assembly  
P.C.B.: Printed Circuit Board  
E.S.D.: Electrostatically Sensitive Devices
3. SERVICE OF CHIP PARTS  
When servicing chip parts, please use a soldering iron of less than 30 W. Refer to "IC, TRANSISTOR AND CHIP PART INFORMATION" page.
4. When replacing 0  $\Omega$  resistor, a wire can be substituted for it.
5. When installing the IC2501 (AN3846SC) or Capstan Stator C.B.A., be sure to apply Silicon Grease (VFK1301). Refer to "Capstan Stator C.B.A." of MECHANISM SECTION in DISASSEMBLY/ASSEMBLY PROCEDURES.
6. Since the UHF/VHF TUNER/TV DEMODULATOR UNIT (Ref. No. 743) has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.
7. Since the FM TRANSMITTER C.B.A. (Ref. No. 720) has already been pre-adjusted at the factory, do not try to adjust the FM TRANSMITTER C.B.A. The FM TRANSMITTER C.B.A. replacement part is available as a complete assembly unit only.
8. EEP ROM IC (IC6004), MAIN C.B.A. replacement note:  
After replacing EEP ROM IC (IC6004) or MAIN C.B.A., be sure to write the initial data with remote control. Refer to "HOW TO INITIALIZE MEMORY IC" in SERVICE NOTES.
9. The Capstan Stator C.B.A. (Ref. No. E30) as a service part is supplied with the Screw installed on it. Please note that there is no functional difference between the units with or without the Screw.

## COMPARISON CHART OF MODELS &amp; MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D

## 12.2. MECHANICAL REPLACEMENT PARTS LIST

## COMPARISON CHART OF MODELS &amp; MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D

## MECHANICAL REPLACEMENT PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
1	VBSS0033	FULL ERASE HEAD	1
2	VKKS0901	MOTOR BLOCK UNIT	1
3	LSDB0045	TENSION ARM BOSS	1
4	VXDS0212	CAPSTAN HOLDER UNIT	1
5	LSMD0209	OPENER PIECE	1
8	VVGS0009	MAIN CAM GEAR KIT	2
9	LSDR0002	S REEL TABLE	1
10	LSDR0003	T REEL TABLE	1
11	VEGS0453	CYLINDER UNIT	1
12	VEHS0596	AUDIO CONTROL/ERASE HEAD UNIT	1
14	LSDG0112	LIFT GEAR	1
16	VXDS0213	LOADING POST BASE-S UNIT	1
17	VXDS0214	LOADING POST BASE-T UNIT	1
18	VXLS1094	PINCH ARM UNIT	1
19	LSDG0110	INTERMEDIATE GEAR A	1
20	VXLS1101	P5 ARM UNIT	1
21	LSML0131	DRIVE RACK ARM	1
22	VXLS1103	TENSION CONTROL ARM UNIT	1
23	LSMX0129	OIL SEAL	1
27	VXLS1100	T BRAKE UNIT	1
29	VXLS1102	TENSION ARM UNIT	1
32	VXLS1104	CLEANER ARM UNIT ( A )	1
33	VDFS0269	CLEANER ROLLER ( A )	1
38	LSMB0221	CASSETTE DOOR SPRING	4
41	VXPS0389	CENTER CLUTCH UNIT	2
42	VMBS1151	CHANGING GEAR SPRING	2
43	LSDG0114	CHANGING GEAR	2
44	VXLS1091	IDLER ARM UNIT	2
45	VXPS0391	CAPSTAN ROTOR UNIT	2
46	LSMA0387	STOPPER ANGLE	2
47	LSMM0003	MAIN ROD	2
48	LXQVB01091	COLOR PICTURE TUBE UNIT	4 △
49	VXLS1099	S LOADING ARM UNIT	2
50	VXLS1098	T LOADING ARM UNIT	2
51	LSDG0116	REEL GEAR	2
52	LSDG0111	INTERMEDIATE GEAR B	2
53	LSMA0423	SUPPORT ANGLE	2
54	LSDV0007	CAPSTAN BELT SQUARE, RUBBER 2MM	2
57	VXSS0010	GROUNDING PLATE UNIT	1
60	VMFS0311	CUSHION	5
61	VXYS1347	CASSETTE UP ASS'Y	3
62	LSMA0352	TOP PLATE	3
64	LSMD0174	SIDE PLATE L	3
65	LSMD0173	SIDE PLATE R	3
66	LSMB0218	SUPPORT SPRING	3
67	LSML0096	OPENER LEVER	3
68	VXLS1111	DRIVE RACK UNIT	3
69	VXAS4423	HOLDER UNIT	3
70	VXLS1110	WIPER ARM UNIT	3
71	LXQKY03091	FRONT CABINET ASS'Y ( A )	4
71	LXQKY01091	FRONT CABINET ASS'Y ( B, C )	4
71	LXQKY02091	FRONT CABINET ASS'Y ( D )	4
72	LSKF0359	CASSETTE DOOR-LID ( A )	4
72	LSKF0377	CASSETTE DOOR-LID ( B, C )	4
72	LSKF0378	CASSETTE DOOR-LID ( D )	4

Ref. No.	Part No.	Part Name & Description	Remarks
73	LXQKV1099VP	REAR COVER UNIT ( A,B )	4
73	LXQKV1099VPK	REAR COVER UNIT ( C )	4
73	LXQKV02091	REAR COVER UNIT ( D )	4
84	LBX61073B	OPERATION BUTTON ( A,B,C )	4
84	LBX61077B	OPERATION BUTTON ( D )	4
90	TBM153023	BADGE, ABS RESIN	4
91	LXQUS01091	TOP SHIELD PLATE ASS'Y	5
92	LXQAS01091U1	SPEAKER UNIT	4
96	LML69002A	CLAMPER	5
100	LSKF0360	BATTERY COVER ( A )	6
100	LSKF0361	BATTERY COVER ( B,C )	6
100	LSKF0362	BATTERY COVER ( D )	6
110	LLJ69007Z	DEGAUSSING COIL	4 $\Delta$
118	LPE64003A	BAG, POLYETHYLENE	6
121	LSPG1049	PACKING CASE, PAPER ( A )	6
121	LSPG1021	PACKING CASE, PAPER ( B )	6
121	LSPG1076	PACKING CASE, PAPER ( C )	6
121	LSPG1022	PACKING CASE, PAPER ( D )	6
122	LSQF0341	FAN BAG ( A,B,D )	6
122	LSQF0395	FAN BAG ( C )	6
123	LSSQ0280	INFRARED REMOTE CONTROL UNIT ( A )	6
123	LSSQ0281	INFRARED REMOTE CONTROL UNIT ( B,C )	6
123	LSSQ0282	INFRARED REMOTE CONTROL UNIT ( D )	6
125	LPJ61031A	TOP CUSHION RIGHT, STYROFOAM	6
126	LPJ61032A	TOP CUSHION LEFT, STYROFOAM	6
129	VMFS0116	SHEET, NYLON-RAYON	4
133	LPJ62032A	BOTTOM CUSHION LEFT, STYROFOAM	6
134	LPJ62031A	BOTTOM CUSHION RIGHT, STYROFOAM	6
149	V8QS0974	VHF ANTENNA ADAPTOR	6
150	TSA700009	VHF ROD ANTENNA	6
153	TMM7443-1	CLAMPER	5
155	TMM76403-1	CLAMPER	5
180	LFX6109A	AC CORD W/PLUG ( D )	6 $\Delta$
180	VJAW0044	AC CORD W/PLUG, 110V/220V/240V ( A,B,C )	6 $\Delta$
181	LFX6301A	DC CORD W/PLUG	6 $\Delta$
185	LUS61017B	SHIELD PLATE	5
189	VMFS0320	SPACER	5
190	TMM7464-1	CLAMPER	5
191	LML63005A	TV FRAME	5
200	LKK683012A	PANEL	4
244	TUX77809	CLAMPER	5
267	VEKS5755	FM ANTENNA CORD ( B,C,D )	5
274	LSMP0299	FM TRANSMITTER HOLDER ( B,C,D )	5
275	VMFS0136	SHEET, NYLON-RAYON ( B,C,D )	5
401	VHDS0475	SCREW, STEEL	1
405	VHDS0496	SCREW W/WASHER, STEEL	5
410	VHDS0498	SCREW W/WASHER, STEEL	1
414	VHNS0070	MAIN CAM PUSH NUT, STEEL	2
422	XWGV2D5G	WASHER, NYLON	2
424	XYC26+SF6J	SCREW W/WASHER, STEEL	1
430	XTV26+6FFZJ	TAPPING SCREW, STEEL	1
432	XTV3+8JR	TAPPING SCREW, STEEL	4, 5
445	LHT60004Y	SCREW, STEEL	4
446	XTV4+16A	TAPPING SCREW, STEEL	4, 5
449	VHDS0493	TAPPING SCREW, STEEL	5
450	VHDS0309	SCREW, STEEL	5
453	XTV3+8G	TAPPING SCREW, STEEL ( B,C,D )	5
458	XTV3+8F	TAPPING SCREW, FE	5
460	XTN4+12A	TAPPING SCREW, STEEL	5
463	XTW3+12Q	TAPPING SCREW, STEEL	5
470	XTV3+10G	TAPPING SCREW, STEEL	4
471	XSN26+5	SCREW, STEEL	1
473	XYN26+C6	SCREW W/WASHER, STEEL	2
474	LSHD0056	TAPPING SCREW, STEEL	1
475	XTV26+5FJ	TAPPING SCREW, STEEL	2
482	XNG3	NUT, STEEL	5
483	XYN3+F10S	SCREW W/WASHER, STEEL	5
488	XYN3+F6S	SCREW W/WASHER, STEEL	5

Ref. No.	Part No.	Part Name & Description	Remarks
489	XYN3+F8S	SCREW W/WASHER, STEEL	5
491	XYN2+J7	SCREW W/WASHER, STEEL	2
501	XTV3+12JR	TAPPING SCREW, STEEL	5
711	PNA4611M00HC	INFRARED RECEIVER UNIT	5
712	VMFS0035	CUSHION, RUBBER	5
720	VEPS4033B	FM TRANSMITTER C.B.A. NR ( B,C,D )	5
721	VEPS7015Y	INTERMEDIATE FREQUENCY C.B.A. NR ( A )	5
721	VEPS7010Y	INTERMEDIATE FREQUENCY C.B.A. NR ( B,C,D )	5
722	LSGF0037	BARRIER ( B,C,D )	5
723	VMFS0134	SHEET, NYLON-RAYON	5
724	LUS61014A	SHIELD CASE	5
725	LMH69005A	INLET HOLDER	5
726	VEKS5523	DEW SENSOR UNIT	5
727	ULTSC10AN1	FUSE 125V 10A	6 $\Delta$
731(IC2505)	EZMP8300F12	MR HEAD	2
732(P2502)	LSJS0097	CONNECTOR 12P	2
733	LSMA0384	BACK PLATE, STEEL	2
742	TJC6319	FUSE HOLDER	5
743	ENV56D50G3	TUNER, UHF/VHF NR ( A )	5
743	ENV56D55G3	TUNER, UHF/VHF NR ( B,C,D )	5
766	TUC76677-1	HEAT SINK	5
771	EYF52BC	FUSE HOLDER	5
776	VSCS1434	HEAT SINK	5
777	LUS63005A	HEAT SINK	5
778	LUS63006A	HEAT SINK	5
779	VEKS5813	GROUNDING WIRE ( B,C,D )	5
782	VEKS5654	CONNECTOR CORD W/PLUG	5
783	VEKS5653	CONNECTOR CORD W/PLUG	5
E10	VEPS3099B	MAIN C.B.A. ( A )	5 RTL
E10	VEPS3099A	MAIN C.B.A. ( B,C,D )	5 RTL
E20	LRP61014A	TV MAIN C.B.A.	5 RTL
E30	VEMS0342	CAPSTAN STATOR C.B.A. NR	2
E40	VEPS5043A	HEAD AMP C.B.A.	1 RTL
E50	LRP63003A	CRT C.B.A.	5 RTL
E60	LRM63006A	POWER SUPPLY C.B.A. ( A )	5 RTL
E60	LRM63006B	POWER SUPPLY C.B.A. ( B,C,D )	5 RTL
E61	LRP63007A	SUB POWER C.B.A.	5 RTL
E70	VEPS0B05A	FM TRANSMITTER HOLDER C.B.A. ( B,C,D )	5 RTL

## SERVICE FIXTURES AND TOOLS

Ref. No.	Part No.	Part Name & Description	Remarks
	VFMS0003H6	VHS ALIGNMENT TAPE	
	VFKS0081	GREASE	
	VFK0329	POST ADJUSTMENT DRIVER	
	VFK1301	SILICON GREASE	
	VFK27	HEAD CLEANING STICK	
	VFK0330	H-POSITION ADJUSTMENT DRIVER	

## 12.3. ELECTRICAL REPLACEMENT PARTS LIST

### COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D

#### PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E10	VEPS3099B	MAIN C.B.A. ( A )	E.S.D. RTL
E10	VEPS3099A	MAIN C.B.A. ( B,C,D )	E.S.D. RTL
E20	LRP61014A	TV MAIN C.B.A.	RTL
E30	VEMS0342	CAPSTAN STATOR C.B.A. NR	
E40	VEPS5043A	HEAD AMP C.B.A.	RTL
E50	LRP63003A	CRT C.B.A.	RTL
E60	LRM63006A	POWER SUPPLY C.B.A. ( A )	RTL
E60	LRM63006B	POWER SUPPLY C.B.A. ( B,C,D )	RTL
E61	LRP63007A	SUB POWER C.B.A.	RTL
E70	VEPS0B05A	FM TRANSMITTER HOLDER C.B.A. ( B,C,D )	RTL

### 12.3.1. MAIN C.B.A.

### COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D

#### INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC2601	AN3808K	IC, LINEAR	
IC3001	AN3479FBP-A	IC, LINEAR	
IC3201	MN3885S	IC, CMOS STANDARD LOGIC	E.S.D.
IC3301	LC8632165S53	IC, 8BIT MICROCONTROLLER	E.S.D.
IC4501	LA4285	IC, LINEAR	
IC5301	AN5367FB	IC, LINEAR	
IC6001	D784928YG114	IC, 16BIT MICROCONTROLLER	E.S.D.
IC6002	RPI-303	PHOTO INTERRUPTER	
IC6003	RPI-303	PHOTO INTERRUPTER	
IC6004	BR24C01AFWE2	IC, 1K EEPROM	E.S.D.
IC6004	AT24C01A10SI	IC, 1K EEPROM	E.S.D.
IC6004	KS24C011IS	IC, 1K EEPROM	E.S.D.
IC6004	M24C01-MN6	IC, 1K EEPROM	E.S.D.

#### TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q1201	2SD2375(PQ)	TRANSISTOR SI NPN	
Q1201	2SC3852	TRANSISTOR SI NPN	
Q1201	2SD2396(K)	TRANSISTOR SI NPN	
Q1202	2SD601A	TRANSISTOR SI NPN CHIP	
Q1202	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q1203	2SD2375(PQ)	TRANSISTOR SI NPN	
Q1203	2SC3852	TRANSISTOR SI NPN	
Q1203	2SD2396(K)	TRANSISTOR SI NPN	
Q3001	2SB709A	TRANSISTOR SI PNP CHIP	

Ref. No.	Part No.	Part Name & Description	Remarks
Q3001	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q3002	2SD601A	TRANSISTOR SI NPN CHIP	
Q3002	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q3310	2SD601A	TRANSISTOR SI NPN CHIP	
Q3310	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q3311	2SB709A	TRANSISTOR SI PNP CHIP	
Q3311	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q3314	KN4501	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q3314	HN1C01F(GR)	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q3314	IMX1	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q3315	UN2112	TRANSISTOR SI PNP CHIP	
Q3315	DTA124EK	TRANSISTOR SI PNP CHIP	
Q4001	2SB709A	TRANSISTOR SI PNP CHIP	
Q4001	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q4002	2SD601(RS)	TRANSISTOR SI NPN CHIP	
Q4003	2SD601(RS)	TRANSISTOR SI NPN CHIP	
Q4101	2SD601A	TRANSISTOR SI NPN CHIP	
Q4101	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q4154	UN2212	TRANSISTOR SI NPN CHIP	
Q4154	DTCL24EKA146	TRANSISTOR SI NPN CHIP	
Q4171	2SD601A	TRANSISTOR SI NPN CHIP	
Q4171	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q5301	2SD601A	TRANSISTOR SI NPN CHIP	
Q5301	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q5302	2SD601A	TRANSISTOR SI NPN CHIP	
Q5302	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q5601	2SD601A	TRANSISTOR SI NPN CHIP	
Q5601	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q5901	2SD2259	TRANSISTOR SI NPN	
Q5901	2SD1858(R)	TRANSISTOR SI NPN	
Q6001	2SD601A	TRANSISTOR SI NPN CHIP	
Q6001	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6002	2SB709A	TRANSISTOR SI PNP CHIP	
Q6002	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q6003	2SD601A	TRANSISTOR SI NPN CHIP	
Q6003	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6009	VEKS5707	PHOTO SENSOR UNIT	
Q6010	VEKS5707	PHOTO SENSOR UNIT	
Q6251	2SD2375(PQ)	TRANSISTOR SI NPN	
Q6251	2SC3852	TRANSISTOR SI NPN	
Q6251	2SD2396(K)	TRANSISTOR SI NPN	
Q6252	2SB709A	TRANSISTOR SI PNP CHIP	
Q6252	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q6254	2SD601A	TRANSISTOR SI NPN CHIP	
Q6254	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6501	2SB940(P)	TRANSISTOR SI PNP	
Q6502	2SD814A	TRANSISTOR SI NPN CHIP	
Q6503	2SD601A	TRANSISTOR SI NPN CHIP	
Q6503	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6504	2SD601A	TRANSISTOR SI NPN CHIP	
Q6504	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6505	2SB709A	TRANSISTOR SI PNP CHIP	
Q6505	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q6506	2SD601A	TRANSISTOR SI NPN CHIP	
Q6506	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6507	2SB709A	TRANSISTOR SI PNP CHIP	
Q6507	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q6511	2SB709A	TRANSISTOR SI PNP CHIP	
Q6511	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q6512	2SD601A	TRANSISTOR SI NPN CHIP	
Q6512	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6513	2SD601A	TRANSISTOR SI NPN CHIP	
Q6513	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6514	2SD601A	TRANSISTOR SI NPN CHIP	
Q6514	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6515	2SB709A	TRANSISTOR SI PNP CHIP	
Q6515	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q6517	2SK374(RS)	FIELD EFFECT TRANSISTOR SI CHIP	



## DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D1201	MA165	DIODE SI	
D1201	1SS119	DIODE SI	
D1201	1SS133T	DIODE SI	
D1202	MA4100N	DIODE ZENER 10V	
D1202	RD10JSAB3	DIODE ZENER 10V	
D1203	MA165	DIODE SI	
D1203	1SS119	DIODE SI	
D1203	1SS133T	DIODE SI	
D1204	MA165	DIODE SI	
D1204	1SS119	DIODE SI	
D1204	1SS133T	DIODE SI	
D1207	MA165	DIODE SI	
D1207	1SS119	DIODE SI	
D1207	1SS133T	DIODE SI	
D4171	MA165	DIODE SI	
D4171	1SS119	DIODE SI	
D4171	1SS133T	DIODE SI	
D4591	RD9.1EW	DIODE ZENER 9.1V	
D4593	RD9.1EW	DIODE ZENER 9.1V	
D5304	MA165	DIODE SI	
D5304	WG713A	DIODE SI	
D5304	1SS119	DIODE SI	
D5304	1SS133T	DIODE SI	
D5501	MA4062-L	DIODE ZENER 6.2V	△
D5504	MA165	DIODE SI	
D5504	WG713A	DIODE SI	
D5504	1SS119	DIODE SI	
D5504	1SS133T	DIODE SI	
D5601	MA165	DIODE SI	
D5601	WG713A	DIODE SI	
D5601	1SS119	DIODE SI	
D5601	1SS133T	DIODE SI	
D6001	VEKS5708	SENSOR LED UNIT	
D6002	MA4051N-TAKT	DIODE ZENER 5.1V	
D6003	MA4051N-TAKT	DIODE ZENER 5.1V	
D6004	MA165	DIODE SI	
D6004	1SS119	DIODE SI	
D6004	1SS133T	DIODE SI	
D6005	MA167	DIODE SI	
D6006	MA165	DIODE SI	
D6006	1SS119	DIODE SI	
D6006	1SS133T	DIODE SI	
D6201	MA165	DIODE SI	
D6201	1SS119	DIODE SI	
D6201	1SS133T	DIODE SI	
D6202	MA165	DIODE SI	
D6202	1SS119	DIODE SI	
D6202	1SS133T	DIODE SI	
D6251	MA165	DIODE SI	
D6251	1SS119	DIODE SI	
D6251	1SS133T	DIODE SI	
D6301	SLP313C81HAB	LIGHT EMITTING DIODE GREEN	
D6302	SLP313C81HAB	LIGHT EMITTING DIODE GREEN	
D6303	SLP413C81HAB	LIGHT EMITTING DIODE ORANGE	
D6305	SLP913C81HAB	LIGHT EMITTING DIODE RED	
D6502	MA165	DIODE SI	
D6502	1SS119	DIODE SI	
D6502	1SS133T	DIODE SI	
D6504	MA165	DIODE SI	
D6504	1SS119	DIODE SI	
D6504	1SS133T	DIODE SI	
D6505	MA165	DIODE SI	
D6505	1SS119	DIODE SI	
D6505	1SS133T	DIODE SI	
D6507	MA4051N-TAKT	DIODE ZENER 5.1V	
D6508	MA165	DIODE SI	
D6508	1SS119	DIODE SI	
D6508	1SS133T	DIODE SI	
D6509	MA4051N-TAKT	DIODE ZENER 5.1V	
D6510	MA4047N-M	DIODE ZENER 4.7V	
D6511	MA4062N-M	DIODE ZENER	
D6513	MA165	DIODE SI	

Ref. No.	Part No.	Part Name & Description	Remarks
D6513	1SS119	DIODE SI	
D6513	1SS133T	DIODE SI	
D6514	MA165	DIODE SI	
D6514	1SS119	DIODE SI	
D6514	1SS133T	DIODE SI	
D6515	MA165	DIODE SI	
D6515	1SS119	DIODE SI	
D6515	1SS133T	DIODE SI	
D6516	MA165	DIODE SI	
D6516	1SS119	DIODE SI	
D6516	1SS133T	DIODE SI	
D6518	MA4062N-L	DIODE ZENER 6.2V	
D6519	MA4390N-M	DIODE ZENER 39V	
D6520	MA4390N-M	DIODE ZENER 39V	
D6521	MA4390N-M	DIODE ZENER 39V	
D6522	MA165	DIODE SI	
D6522	1SS119	DIODE SI	
D6522	1SS133T	DIODE SI	
D6523	MA165	DIODE SI	
D6523	1SS119	DIODE SI	
D6523	1SS133T	DIODE SI	
D6524	MA4390N-M	DIODE ZENER 39V	
D6525	MA4390N-M	DIODE ZENER 39V	
D6526	MA4160N-L	DIODE ZENER 16V	
D7001	MA4300-M	DIODE ZENER 30V	
D7001	MA4300-H	DIODE ZENER 30V	

## RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R1201	ERDS2TJ103	CARBON 1/4W 10K	
R1202	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1203	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1204	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R1206	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1208	ERDS2TJ470T	CARBON 1/4W 47	
R1209	ERDS2TJ101	CARBON 1/4W 100	
R1210	ERDS2TJ101	CARBON 1/4W 100	
R1211	ERDS2TJ470T	CARBON 1/4W 47	
R1212	ERDS2TJ470T	CARBON 1/4W 47	
R2601	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2602	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2603	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2604	ERDS2TJ1R0	CARBON 1/4W 1	
R2605	ERDS2TJ1R2	CARBON 1/4W 1.2	
R2606	ERDS2TJ561	CARBON 1/4W 560	
R3001	ERDS2TJ221	CARBON 1/4W 220	
R3006	ERDS2TJ221	CARBON 1/4W 220	
R3010	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3016	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3017	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3024	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3025	ERJ6GEYJ125V	MGF CHIP 1/10W 1.2M	
R3026	ERJ6GEYJ474V	MGF CHIP 1/10W 470K	
R3028	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R3029	ERJ6GEYJ151V	MGF CHIP 1/10W 150	
R3032	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R3035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3036	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3037	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3038	ERDS2TJ222	CARBON 1/4W 2.2K	
R3043	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R3044	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R3045	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3046	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R3077	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3084	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3086	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R3087	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R3091	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3301	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3306	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R3313	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3314	ERJ6GEYJ331V	MGF CHIP 1/10W 330	

Ref. No.	Part No.	Part Name & Description	Remarks
R3317	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3318	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3322	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3326	ERJ6GEYJ105V	MGF CHIP 1/10W 1M	
R3329	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R3330	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R3332	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3336	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3337	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3340	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3341	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3343	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3344	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3345	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3346	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R3347	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3348	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R3352	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R3353	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R3354	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R3361	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R3362	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R3363	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R3366	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R3375	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R3377	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R3378	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R3379	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R3380	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R3381	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4002	ERJ6GEYJ334V	MGF CHIP 1/10W 330K	
R4003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4005	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R4006	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R4007	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4008	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R4009	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4010	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4011	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4012	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4014	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4015	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4018	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K ( A )	
R4018	ERJ6GEYJ123V	MGF CHIP 1/10W 12K ( B,C,D )	
R4021	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4051	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R4052	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4101	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R4102	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R4103	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4171	ERDS2TJ153	CARBON 1/4W 15K	
R4172	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4173	ERDS2TJ222	CARBON 1/4W 2.2K	
R4175	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4502	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4504	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
R4509	ERDS2TJ100	CARBON 1/4W 10	
R4523	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4524	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R4592	ERDS2TJ560T	CARBON 1/4W 56	
R4701	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5301	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5302	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5303	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R5304	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R5305	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R5306	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5307	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R5308	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R5309	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R5311	ERJ6GEYJ331V	MGF CHIP 1/10W 330	

Ref. No.	Part No.	Part Name & Description	Remarks
R5312	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5313	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5314	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R5315	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R5316	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R5317	ERDS2TJ102	CARBON 1/4W 1K	
R5318	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R5322	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R5324	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5325	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5401	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5402	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5403	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5405	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
R5406	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5501	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R5502	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5503	ERDS2TJ471	CARBON 1/4W 470	
R5504	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5505	ERJ6ENF3241V	MGF CHIP 1/10W 3.24K	△
R5506	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R5508	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5510	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5511	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5512	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5513	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5515	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R5601	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R5604	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R5611	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R5612	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R5613	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R5902	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5932	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5933	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5934	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6001	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6003	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6005	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6006	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6007	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6008	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6009	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6010	ERDS2TJ101	CARBON 1/4W 100	
R6011	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6012	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6013	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6014	ERDS2TJ101	CARBON 1/4W 100	
R6015	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6016	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6017	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6019	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6020	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R6022	ERJ6GEYJ243V	MGF CHIP 1/10W 24K	
R6023	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6024	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6025	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6026	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6027	ERJ6GEYJ223V	MGF CHIP 1/10W 22K ( B,C,D )	
R6028	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6030	ERJ6GEYJ223V	MGF CHIP 1/10W 22K ( B,C,D )	
R6031	ERJ6GEYJ223V	MGF CHIP 1/10W 22K ( A )	
R6034	ERJ6GEYJ223V	MGF CHIP 1/10W 22K ( A )	
R6035	ERJ6GEYJ113V	MGF CHIP 1/10W 11K	
R6036	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6037	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6038	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6039	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6040	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6041	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6042	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6043	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	

Ref. No.	Part No.	Part Name & Description	Remarks
R6044	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6045	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6050	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6051	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6052	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6053	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6054	ERDS2TJ471	CARBON 1/4W 470	
R6055	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6056	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6057	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R6058	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6059	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6100	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6101	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6102	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6103	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6105	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R6106	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6107	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6108	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6111	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6112	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6113	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6123	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6124	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6125	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6126	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6127	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6128	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6131	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6132	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6133	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6134	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6135	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6136	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6137	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6138	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6139	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6142	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6143	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R6144	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R6145	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6146	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6147	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6148	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R6149	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6150	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6151	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6152	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R6154	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6155	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6156	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6157	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6158	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6159	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6162	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6163	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6164	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6167	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6171	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6172	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6173	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6174	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6175	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6176	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6177	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6179	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6180	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6201	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6202	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6203	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6204	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6208	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	

Ref. No.	Part No.	Part Name & Description	Remarks
R6209	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6210	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6211	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6212	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6214	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6215	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6216	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6218	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6219	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6220	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6251	ERDS2TJ221	CARBON 1/4W 220	
R6252	ERDS2TJ221	CARBON 1/4W 220	
R6255	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6260	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6261	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6262	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6263	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6301	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6303	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6304	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6305	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6307	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6308	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6502	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6503	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R6504	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6505	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6506	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6507	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6508	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6509	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6510	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6512	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6513	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6514	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6515	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6516	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6517	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6518	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6519	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6520	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6522	ERDS2TJ560T	CARBON 1/4W 56	
R6530	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6531	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6533	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6534	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6535	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6536	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6542	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6543	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6544	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6545	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6546	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6548	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6550	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6554	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R7001	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7002	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7003	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7004	ERDS1TJ272T	CARBON 1/2W 2.7K	
R7005	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R7006	ERDS2TJ561	CARBON 1/4W 560	
R7007	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7010	ERDS2TJ222	CARBON 1/4W 2.2K	
R7011	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	

## CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C1201	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C1202	ECUV1H102KBN	C CHIP 50V 1000PF	
C1203	ECEA1HKAR47	ELECTROLYTIC 50V 0.47UF	
C1204	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C1205	ECEA1CKA100	ELECTROLYTIC 16V 10UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C1206	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
C1208	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C1209	ECA1CM471B	ELECTROLYTIC 16V 470UF	
C1210	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C1211	ECEA1CKA101I	ELECTROLYTIC 16V 100UF	
C1213	ECA1CM471B	ELECTROLYTIC 16V 470UF	
C2601	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C2602	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C2603	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C2604	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2605	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2606	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2607	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2608	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C2609	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C2610	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C2611	ECUV1H103KBN	C CHIP 50V 0.01UF	
C2612	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C3001	ECUV1H103KBN	C CHIP 50V 0.01UF	
C3003	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3004	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3006	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3007	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C3008	ECUV1H181JCN	C CHIP 50V 180PF	
C3009	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C3010	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3013	ECUV1C224ZFN	C CHIP 16V 0.22UF	
C3015	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C3016	ECEA1CKS100	ELECTROLYTIC 16V 10UF	
C3019	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3020	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C3021	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3022	ECUV1C224ZFN	C CHIP 16V 0.22UF	
C3023	ECUV1H680JCN	C CHIP 50V 68PF	
C3024	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3025	ECUV1E104KBN	C CHIP 25V 0.1UF	
C3026	ECUV1H822KBN	C CHIP 50V 8200PF	
C3027	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3030	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3031	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3032	ECUV1C474ZFN	C CHIP 16V 0.47UF	
C3034	ECUV1H181JCN	C CHIP 50V 180PF	
C3035	ECUV1H330JCN	C CHIP 50V 33PF	
C3036	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3038	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C3041	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3043	ECUV1H392KBN	C CHIP 50V 3900PF	
C3044	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3045	ECEA1HKA4R7	ELECTROLYTIC 50V 0.47UF	
C3046	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3047	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C3048	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3050	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3053	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3055	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3056	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3057	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3058	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3060	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C3082	ECUV1H332KBN	C CHIP 50V 3300PF	
C3231	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C3232	ECUV1H102KBN	C CHIP 50V 1000PF	
C3234	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C3235	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3236	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3237	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3301	ECUV1H220JCN	C CHIP 50V 22PF	
C3302	ECUV1H180JCN	C CHIP 50V 18PF	
C3303	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3304	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	
C3305	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3308	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3309	ECEA1HKS010	ELECTROLYTIC 50V 1UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C3310	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3311	ECUV1H333KBN	C CHIP 50V 0.033UF	
C3312	ECUV1H102KBN	C CHIP 50V 1000PF	
C3313	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3314	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3326	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C3335	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C3367	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C4001	ECUV1C224ZFN	C CHIP 16V 0.22UF	
C4002	ECEA1HKS010	ELECTROLYTIC 50V 1UF	
C4003	ECUV1H272KBN	C CHIP 50V 2700PF	
C4004	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4005	ECEA0JKS220	ELECTROLYTIC 6.3V 22UF	
C4006	ECUV1H102KBN	C CHIP 50V 1000PF	
C4007	ECEA0JKA220	ELECTROLYTIC 6.3V 22UF	
C4008	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C4009	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4010	ECUV1E333KBN	C CHIP 25V 0.033UF	
C4011	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4012	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4013	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C4014	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4018	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4020	ECEA1HKS010	ELECTROLYTIC 50V 1UF	
C4051	ECUV1E333KBN	C CHIP 25V 0.033UF	
C4102	ECQB1562JF3	POLYESTER 100V 5600PF	
C4103	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4104	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4105	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C4171	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4502	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4504	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C4506	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C4508	ECA1CM221B	ELECTROLYTIC 16V 220UF	
C4509	ECUV1H473KBN	C CHIP 50V 0.047UF	
C4521	ECA1EM102B	ELECTROLYTIC 25V 1000UF	
C4525	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C4526	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
C5301	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5302	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C5303	ECEA1HKA47	ELECTROLYTIC 50V 0.47UF	
C5305	ECEA1HKA47	ELECTROLYTIC 50V 0.47UF	
C5306	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5307	ECEA1CKN100	ELECTROLYTIC 16V 10UF	
C5308	ECEA1CKN100	ELECTROLYTIC 16V 10UF	
C5401	VCUSTBC224KB	C CHIP 16V 0.22UF	
C5402	ECUV1H222KBN	C CHIP 50V 2200PF	
C5403	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C5501	ECUV1E183KBN	C CHIP 25V 0.018UF	
C5502	ECUV1H471KBN	C CHIP 50V 470PF	
C5505	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C5506	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C5507	ECEA1CKS100	ELECTROLYTIC 16V 10UF	
C5508	ECUV1H221JCN	C CHIP 50V 220PF	
C5510	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C5511	ECUV1E333KBN	C CHIP 25V 0.033UF	
C5516	ECUV1E333KBN	C CHIP 25V 0.033UF	
C5601	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C5602	ECUV1E104KBN	C CHIP 25V 0.1UF	
C5603	ECUV1H150JCN	C CHIP 50V 15PF	
C5604	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C5605	ECUV1E153KBN	C CHIP 25V 0.015UF	
C5902	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C5903	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C5904	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C5905	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C5906	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C5932	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C6001	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6003	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C6004	ECUV1H180JCN	C CHIP 50V 18PF	
C6005	ECUV1H150GCN	C CHIP 50V 15PF	
C6006	ECUV1H020CCN	C CHIP 50V 2PF	

Ref. No.	Part No.	Part Name & Description	Remarks
C6007	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6012	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C6013	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	
C6014	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6016	ECUV1H101JCN	C CHIP 50V 100PF	
C6017	ECUV1H101JCN	C CHIP 50V 100PF	
C6018	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6021	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6026	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6027	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6028	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6030	ECUV1H102KBN	C CHIP 50V 1000PF	
C6031	ECUV1H102KBN	C CHIP 50V 1000PF	
C6201	ECUV1H102KBN	C CHIP 50V 1000PF	
C6203	ECUV1H103KBN	C CHIP 50V 0.01UF	
C6205	ECUV1H103KBN	C CHIP 50V 0.01UF	
C6207	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6208	ECUV1H102KBN	C CHIP 50V 1000PF	
C6210	ECUV1H104KBN	C CHIP 25V 0.1UF	
C6211	ECUV1H272KBN	C CHIP 50V 2700PF	
C6212	ECEA1HKS010	ELECTROLYTIC 50V 1UF	
C6213	ECUV1H151KN	C CHIP 50V 150PF	
C6214	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6216	ECEA0JKS470	ELECTROLYTIC 6.3V 47UF	
C6217	ECEA0JKS101	ELECTROLYTIC 6.3V 100UF	
C6218	ECUV1H100CCN	C CHIP 50V 10PF	
C6219	ECEA1EKS4R7	ELECTROLYTIC 25V 4.7UF	
C6221	ECUV1H272KBN	C CHIP 50V 2700PF	
C6222	ECUV1H103KBN	C CHIP 50V 0.01UF	
C6223	ECUV1H392KBN	C CHIP 50V 3900PF	
C6234	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C6235	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	
C6236	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	
C6251	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C6502	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C6503	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6504	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C6505	ECUV1H102KBN	C CHIP 50V 1000PF	
C6506	ECEA1HKAR47	ELECTROLYTIC 50V 0.47UF	
C6509	ECA0JML02B	ELECTROLYTIC 6.3V 1000UF	
C6511	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6513	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C7001	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C7002	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C7003	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C7004	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C7005	ECUV1H104ZFN	C CHIP 25V 0.1UF	
C7010	ECUV1H102KBN	C CHIP 50V 1000PF	
C7012	ECA0JML02B	ELECTROLYTIC 6.3V 1000UF	
C7013	ECUV1H102KBN	C CHIP 50V 1000PF	
C7014	ECEA1HKA4R7	ELECTROLYTIC 50V 4.7UF	

## FILTERS

Ref. No.	Part No.	Part Name & Description	Remarks
FL4051	VLFS0014	FILTER	

## COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L3001	VLQSH02R390K	COIL 39UH	
L3002	ELESN101KA	COIL 100UH	
L3005	VLQSH02R330K	COIL 33UH	
L3010	ELESN470KA	COIL 47UH	
L3231	ELESN221KA	COIL 220UH	
L3301	VLQSH02R101K	COIL 100UH	
L3303	VLPS0111	CHIP BEAD INDUCTOR	
L3304	VLPS0111	CHIP BEAD INDUCTOR	
L3305	VLPS0111	CHIP BEAD INDUCTOR	
L4001	VLQSU06R153K	COIL 15MH	
L4002	ELESN101KA	COIL 100UH	
L4004	VLQSH02R390K	COIL 39UH	
L4101	ELESN471KA	COIL 470UH	
L5901	ELESN101KA	COIL 100UH	

Ref. No.	Part No.	Part Name & Description	Remarks
L6201	ELEXT101KE04	COIL 100UH	
L7001	ELESN100KA	COIL 10UH	
L7002	ELESN101KA	COIL 100UH	

## CRYSTAL OSCILLATOR

Ref. No.	Part No.	Part Name & Description	Remarks
X3301	VSXS0238	CRYSTAL OSCILLATOR	
X5501	CSB503F38	CRYSTAL OSCILLATOR	
X5601	VSXS0190-TB	CRYSTAL OSCILLATOR	
X6001	VSXS0784	CRYSTAL OSCILLATOR	

## PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P1201	VJPS0278	PIN HEADER 8P	
P3001	LSJP0085	CONNECTOR 10P	
P4001	VJSS0888	FE CONNECTOR 2P	
P4271	VEKS5814	CONNECTOR CABLE W/PLUG,DC12V ( B,C,D )	
P4501	VEKS5816	CONNECTOR CABLE W/PLUG,DC16V	
P4591	VJPS0268	CONNECTOR 2P	
P5301	VEKS5655	CONNECTOR CORD W/PLUG,DC12V	
P5302	VEKS5646	CONNECTOR CORD W/PLUG,DC10V	
P6001	VJPS0275	CONNECTOR 5P	
P6002	VJPS0275	CONNECTOR 5P	
P6003	VEKS5648	CONNECTOR CORD W/PLUG,DC24V	
P6004	VJSS0891	CONNECTOR 3P	
P6201	LSJP0089	CONNECTOR 12P	
P6202	LSJP0088	CONNECTOR 12P	
P7001	VEKS5649	CONNECTOR W/PLUG,DC0V (GND)	CORD

## SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW6001	LSSH0002	LEAF SWITCH-SAFETY TAB	
SW6002	LSSS0008	MODE SWITCH	
SW6301	EVQ21405R	PUSH SWITCH	
SW6302	EVQ21405R	PUSH SWITCH	
SW6304	EVQ21405R	PUSH SWITCH	
SW6305	EVQ21405R	PUSH SWITCH	
SW6306	EVQ21405R	PUSH SWITCH	
SW6307	EVQ21405R	PUSH SWITCH	
SW6308	EVQ21405R	PUSH SWITCH	
SW6310	EVQ21405R	PUSH SWITCH	
SW6311	EVQ21405R	PUSH SWITCH	
SW6312	EVQ21405R	PUSH SWITCH	
SW6501	EVQ21405R	PUSH SWITCH	

## FUSE &amp; PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
PR1201	ICP-F38-1	IC PROTECTOR 1.5A	△
PR1203	ICP-F15	IC PROTECTOR	△

## TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T4101	VLTS0367	TRANSFORMER	

## JACKS

Ref. No.	Part No.	Part Name & Description	Remarks
JK4591	TJS7A8030	EARPHONE JACK	
JK4701	LJP68008A	AUDIO/VIDEO JACK SOCKET	

## MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
482	XNG3	NUT, STEEL	
483	XYN3+F10S	SCREW W/WASHER, STEEL	
711	PNA4611M00HC	INFRARED RECEIVER UNIT	
712	VMTS0035	CUSHION, RUBBER	
721	VEPS7015Y	INTERMEDIATE FREQUENCY C.B.A. NR ( A )	

Ref. No.	Part No.	Part Name & Description	Remarks
721	VEPS7010Y	INTERMEDIATE FREQUENCY C.B.A. NR ( B,C,D )	
723	VMFS0134	SHEET,NYLON-RAYON	
743	ENV56D50G3	TUNER,UHF/VHF NR ( A )	
743	ENV56D55G3	TUNER,UHF/VHF NR ( B,C,D )	
776	V8CS1434	HEAT SINK	

## 12.3.2. TV MAIN C.B.A.

### INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC451	LA7837	IC, LINEAR	

### TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q431	2SA733(TQ)	TRANSISTOR SI PNP	
Q431	2SA1175	TRANSISTOR SI PNP	
Q431	2SA1175(TH)	TRANSISTOR SI PNP	
Q432	2SC3311A(R)	TRANSISTOR SI NPN	
Q433	2SB1322A(R,S)	TRANSISTOR SI PNP	
Q434	2SC3311A(R)	TRANSISTOR SI NPN	
Q501	2SC2482KT6	TRANSISTOR SI NPN	
Q506	2SA733(TQ)	TRANSISTOR SI PNP	
Q506	2SA1175	TRANSISTOR SI PNP	
Q506	2SA1175(TH)	TRANSISTOR SI PNP	
Q507	2SC945A(TQ)	TRANSISTOR SI NPN	
Q507	2SC2785(TH)	TRANSISTOR SI NPN	
Q507	2SC2785(TJ)	TRANSISTOR SI NPN	
Q508	2SC945A(TQ)	TRANSISTOR SI NPN	
Q508	2SC2785(TH)	TRANSISTOR SI NPN	
Q508	2SC2785(TJ)	TRANSISTOR SI NPN	
Q551	2SD2586LBK	TRANSISTOR SI NPN	△
Q571	2SC945A(TQ)	TRANSISTOR SI NPN	
Q571	2SC2785(TH)	TRANSISTOR SI NPN	
Q571	2SC2785(TJ)	TRANSISTOR SI NPN	
Q581	2SA1321TPE6	TRANSISTOR SI NPN	
Q581	2SA1767(Q)	TRANSISTOR SI NPN	
Q581	2SB1221(Q)	TRANSISTOR SI NPN	

### DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D401	ERB12-01V	DIODE SI	
D401	ERB12-01	DIODE SI	
D401	ERB12-01RKV1	DIODE SI	
D501	MA165	DIODE SI	
D501	1SS119	DIODE SI	
D501	1SS133T	DIODE SI	
D503	ERB43-04V	DIODE SI	
D503	ES1V	DIODE SI	
D504	MA4047-M	DIODE ZENER 4.7V	
D504	MA4047-H	DIODE ZENER 4.7V	
D504	RD4.7ESAB	DIODE ZENER 4.7V	
D504	RD4.7ESAB2	DIODE ZENER 4.7V	
D504	04AZ4.7ZTPA7	DIODE ZENER 4.7V	
D505	MA165	DIODE SI	
D505	1SS119	DIODE SI	
D505	1SS133T	DIODE SI	
D523	MA4047-M	DIODE ZENER 4.7V	
D523	MA4047-H	DIODE ZENER 4.7V	
D523	RD4.7ESAB	DIODE ZENER 4.7V	
D523	RD4.7ESAB2	DIODE ZENER 4.7V	
D523	04AZ4.7ZTPA7	DIODE ZENER 4.7V	
D524	MA165	DIODE SI	
D524	1SS119	DIODE SI	
D524	1SS133T	DIODE SI	
D553	ERB43-04V	DIODE SI	
D553	ES1V	DIODE SI	
D554	4148-TA	DIODE SI	
D554	MA167	DIODE SI	
D555	ERB43-04V	DIODE SI	
D555	ES1V	DIODE SI	

Ref. No.	Part No.	Part Name & Description	Remarks
D558	ERB43-04V	DIODE SI	
D558	ES1V	DIODE SI	
D560	ERB43-04V	DIODE SI	
D560	ES1V	DIODE SI	
D591	MA165	DIODE SI	
D591	1SS119	DIODE SI	
D591	1SS133T	DIODE SI	
D801	ERCL3-08V	DIODE SI	△
D801	EM02BMV	DIODE SI	△
D802	ERCL3-08V	DIODE SI	△
D802	EM02BMV	DIODE SI	△
D803	ERCL3-08V	DIODE SI	△
D803	EM02BMV	DIODE SI	△
D804	ERCL3-08V	DIODE SI	△
D804	EM02BMV	DIODE SI	△
D813	RU4YXLFM1	DIODE SI	△
D881	ERZV10V361CS	SURGE ABSORBER	△

### RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R401	ERDS2TJ821	CARBON 1/4W 820	
R402	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R405	ERDS1TJ102	CARBON 1/2W 1K	
R409	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R410	ERDS2TJ392	CARBON 1/4W 3.9K	
R411	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R413	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R414	ERDS1FJ1R8P	CARBON 1/2W 1.8	△
R422	ERD25FJ101P	CARBON 1/4W 100	△
R427	ERQ14ZJ1R5P	FUSE 1/4W 1.5	△
R431	ERDS2TJ103	CARBON 1/4W 10K	
R432	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R433	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R434	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R435	ERDS2TJ102	CARBON 1/4W 1K	
R436	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R466	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R468	ERDS2TJ102	CARBON 1/4W 1K	
R469	ERDS2TJ222	CARBON 1/4W 2.2K	
R470	ERDS2TJ152	CARBON 1/4W 1.5K	
R471	ERDS2TJ391	CARBON 1/4W 390	
R472	ERDS2TJ391	CARBON 1/4W 390	
R473	ERDS2TJ101	CARBON 1/4W 100	
R474	ERDS2TJ152	CARBON 1/4W 1.5K	
R475	ERDS2TJ152	CARBON 1/4W 1.5K	
R476	ERDS2TJ561	CARBON 1/4W 560	
R478	ERDS2TJ332	CARBON 1/4W 3.3K	
R480	ERDS2TJ561	CARBON 1/4W 560	
R481	ERDS2TJ152	CARBON 1/4W 1.5K	
R482	ERDS2TJ100	CARBON 1/4W 10	
R484	ERDS2TJ101	CARBON 1/4W 100	
R501	ERDS2TJ471	CARBON 1/4W 470	
R502	ERDS2TJ332	CARBON 1/4W 3.3K	
R503	ER0S2THF1182	PRECISION METAL FILM 1/4W 11.8K	△
R503	ER0S2TKF1182	PRECISION METAL FILM 1/4W 11.8K	△
R503	VRESR4TF1182	PRECISION METAL FILM 1/4W 11.8K	△
R504	ERDS2TJ331	CARBON 1/4W 330	
R509	ERDS2TJ101	CARBON 1/4W 100	
R511	ERG2ANJ222H	METAL OXIDE 2W 2.2K	
R512	ERDS2TJ222	CARBON 1/4W 2.2K	
R513	ERDS2TJ472	CARBON 1/4W 4.7K	
R515	ERDS2TJ101	CARBON 1/4W 100	
R516	LAR05272J09	W FLMPRF 5W 2.7K	
R519	ERDS2TJ822	CARBON 1/4W 8.2K	
R526	ERDS2TJ272	CARBON 1/4W 2.7K	
R527	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R529	ERDS2TJ103	CARBON 1/4W 10K	
R531	ERDS2TJ223	CARBON 1/4W 22K	
R535	ERDS2TJ472	CARBON 1/4W 4.7K	
R536	ERDS2TJ562	CARBON 1/4W 5.6K	



Ref. No.	Part No.	Part Name & Description	Remarks
R546	ERDS2TJ564T	CARBON 1/4W 560K	
R552	ERDS2TJ273	CARBON 1/4W 27K	
R553	ERDS2TJ102	CARBON 1/4W 1K	
R554	ERDS2TJ123	CARBON 1/4W 12K	
R555	ERDS2TJ124	CARBON 1/4W 120K	
R556	ERDS2TJ104	CARBON 1/4W 100K	
R557	ERDS2TJ563T	CARBON 1/4W 56K	
R558	ERQ2CJP102S	FUSE 2W 1K	△
R559	ERDS2TJ563T	CARBON 1/4W 56K	
R560	ERDS2TJ563T	CARBON 1/4W 56K	
R561	ERQ1CJP2R7S	FUSE 1W 2.7	△
R562	ERDS2TJ563T	CARBON 1/4W 56K	
R565	ERDS1FJ1R0P	CARBON 1/2W 1	△
R566	ERDS2TJ104	CARBON 1/4W 100K	
R567	ERDS2TJ104	CARBON 1/4W 100K	
R571	ERDS2TJ101	CARBON 1/4W 100	
R572	ERDS2TJ331	CARBON 1/4W 330	
R573	ERDS2TJ221	CARBON 1/4W 220	
R574	ERDS2TJ103	CARBON 1/4W 10K	
R581	ERDS1FJ2R2	CARBON 1/2W 2.2	△
R582	ERDS1FJ2R2	CARBON 1/2W 2.2	△
R584	ERDS2TJ562	CARBON 1/4W 5.6K	
R585	ERDS2TJ473	CARBON 1/4W 47K	
R591	ERDS2TJ222	CARBON 1/4W 2.2K	
R592	ERDS2TJ103	CARBON 1/4W 10K	
R801	ERF3AKR47	W FLMPRF 3W 0.47	△
R801	LAR03R47K02	W FLMPRF 3W 0.47	△
R810	VRESC2TK825C	SOLID 1/2W 8.2M	△
R810	VRESC2TK825T	SOLID 1/2W 8.2M	△
R821	ERDS2TJ103	CARBON 1/4W 10K	
R4530	ERQ1ABJP4R7S	FUSE 1W 4.7	△

## CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C401	ECEA1HGE2R2	ELECTROLYTIC 50V 2.2UF	
C402	ECA1CM471B	ELECTROLYTIC 16V 470UF	
C408	ECA1HGE010KB	ELECTROLYTIC 50V 1UF	
C409	ECA1VM470B	ELECTROLYTIC 35V 47UF	
C413	ECQB1H104KF	POLYESTER 50V 0.1UF	
C414	ECA1EM102E	ELECTROLYTIC 25V 1000UF	
C418	ECA1VM221B	ELECTROLYTIC 35V 220UF	
C458	ECQB1H103KM	POLYESTER 50V 0.01UF	
C501	ECQB1H223KM3	POLYESTER 50V 0.022UF	
C510	ECKR2H681KB5	CERAMIC 500V 680PF	
C513	ECA1HM100B	ELECTROLYTIC 50V 10UF	
C520	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C522	ECA1HML00B	ELECTROLYTIC 50V 10UF	
C524	ECKC3D681KBP	CERAMIC 2KV 680PF	△
C524	ECKW3D681KBP	CERAMIC 2KV 680PF	△
C531	ECA1HM3R3B	ELECTROLYTIC 50V 3.3UF	
C552	ECA1EM471B	ELECTROLYTIC 25V 470UF	
C553	ECKR2H471KB5	CERAMIC 500V 470PF	
C554	ECWH12H562J8	POLYESTER 1250V 0.0056UF	△
C554	ECWH16562JVB	POLYESTER 1.6KV 5600PF	△
C554	LSCFN12562JB	POLYESTER 1250V 5600PF	△
C556	ECWF2224JBB	POLYESTER 250V 0.22UF	△
C556	ECWF2224J5B	POLYESTER 250V 0.22UF	△
C556	LSCFM2224J5M	POLYESTER 1250V 0.22UF	△
C558	ECA1VM101B	ELECTROLYTIC 35V 100UF	
C559	ECA2EM100B	ELECTROLYTIC 250V 10UF	
C560	ECA2EM100B	ELECTROLYTIC 250V 10UF	△
C561	ECA2CM2R2B	ELECTROLYTIC 160V 2.2UF	
C563	ECEA160V33ZE	ELECTROLYTIC 160V 33UF	
C571	ECA1HM3R3B	ELECTROLYTIC 50V 3.3UF	
C573	ECQE2475KPB	POLYESTER 250V 4.7UF	
C801	ECQU2A823MLA	POLYESTER 250V 0.082UF	△
C801	LSCFQ2A823MC	POLYESTER 250V 0.082UF	△
C804	ECKDRS103ZV	CERAMIC 125V 0.01UF	△
C804	ECKATS103MF	CERAMIC 250V 0.01UF	△
C805	ECKM2H472PE7	CERAMIC 500V 4700PF	
C806	ECKM2H472PE7	CERAMIC 500V 4700PF	
C807	ECKM2H472PE7	CERAMIC 500V 4700PF	
C808	ECKM2H472PE7	CERAMIC 500V 4700PF	

Ref. No.	Part No.	Part Name & Description	Remarks
C809	ECKETS221MB	CERAMIC 125V 220PF	△
C810	ECKETS221MB	CERAMIC 125V 220PF	△
C822	ECKR1H103ZF5	CERAMIC 50V 0.01UF	
C4527	ECA1EM471B	ELECTROLYTIC 25V 470UF	

## COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L552	TSC925V	COIL	
L801	ELF18D656V	LINE FILTER 1A 27MH	△
L801	TLPD010	COIL	△

## PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P2	VJSS0898	4P WIRE TRAP	
P4	VJPS0267	PIN HEADER 10P	
P801	VJSS3335	AC INLET	△
P802	VJPS1154	CONNECTOR 2P	
P803	VJSS3336	DC INLET	△
P804	VJPS0276	PIN HEADER CONNECTOR 6P	
P807	VJPS0303	CONNECTOR 2P	
P899	VJPS0258	PIN HEADER 3P	
P4502	VJPS0273	PIN HEADER CONNECTOR 3P	

## FUSE &amp; PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
F801	XBA1C40NU100	FUSE 125V 4A	△
F801	VSFS0003A40	FUSE 4A	△
F802	LSSF001A120	FUSE 125V 12A	△
FR801	ICP-F15	IC PROTECTOR	△

## RELAY

Ref. No.	Part No.	Part Name & Description	Remarks
RL501	TSEH0005	RELAY, 120V	△

## TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T501	ETH09K6AZ	TRANSFORMER	
T551	ZTFM82004A	TRANSFORMER	△

## MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
432	XTV3+8JR	TAPPING SCREW, STEEL	
488	XYN3+F6S	SCREW W/WASHER, STEEL	
724	LUS61014A	SHIELD CASE	
725	LMH69005A	INLET HOLDER	
742	TJC6319	FUSE HOLDER	
766	TUC76677-1	HEAT SINK	
771	EYF52BC	FUSE HOLDER	

## 12.3.3. CAPSTAN STATOR C.B.A. NR

## INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC2501	AN3846SC	IC, LINEAR	

## RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R2501	ERJ8GEYJ1R0Z	MGF CHIP 1/8W 1	
R2502	ERJ8GEYJ1R0Z	MGF CHIP 1/8W 1	
R2505	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	

## CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C2504	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C2506	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C2507	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C2508	ECUV1E104KEN	C CHIP 25V 0.1UF	
C2509	ECUV1E104KEN	C CHIP 25V 0.1UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C2510	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2511	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C2517	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2519	ECUV1H102KBN	C CHIP 50V 1000PF	
C2520	ECUV1C225ZFN	C CHIP 16V 2.2UF	
C2521	ECUV1C225ZFN	C CHIP 16V 2.2UF	
C2522	ECUV1C225ZFN	C CHIP 16V 2.2UF	

## MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
491	XYN2+J7	SCREW W/WASHER, STEEL	
731 (IC2 505)	EZMP8300F12	MR HEAD	
732 (P25 02)	LSJS0097	CONNEXOR 12P	
733	LSMA0384	BACK PLATE, STEEL	

## 12.3.4. HEAD AMP C.B.A.

## INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC3501	AN3371SB	IC, LINEAR	

## RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R3502	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3503	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3507	ERJ6GEYJ331V	MGF CHIP 1/10W 330	

## CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C3504	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C3506	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3508	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3511	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3512	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3513	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3528	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3529	ECUV1H103ZFN	C CHIP 50V 0.01UF	

## COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L3501	ELESN101KA	COIL 100UH	

## PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P2601	LSJS0096	CONNECTOR 12P	
P3501	LSJS0093	CONNECTOR 10P	
P4091	LSJWM6N085AA	CONNECTOR CABLE W/OUT PLUG, 48V	

## 12.3.5. CRT C.B.A.

## TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q351	2SC1473-QNC	TRANSISTOR SI NPN	
Q351	2SC1473A(Q)	TRANSISTOR SI NPN	
Q351	2SC2482(T)	TRANSISTOR SI NPN	
Q351	2SC4015(N)	TRANSISTOR SI NPN	
Q352	2SC1473-QNC	TRANSISTOR SI NPN	
Q352	2SC1473A(Q)	TRANSISTOR SI NPN	
Q352	2SC2482(T)	TRANSISTOR SI NPN	
Q352	2SC4015(N)	TRANSISTOR SI NPN	
Q353	2SC1473-QNC	TRANSISTOR SI NPN	
Q353	2SC1473A(Q)	TRANSISTOR SI NPN	
Q353	2SC2482(T)	TRANSISTOR SI NPN	
Q353	2SC4015(N)	TRANSISTOR SI NPN	
Q354	2SC945A(TKA)	TRANSISTOR SI NPN	

Ref. No.	Part No.	Part Name & Description	Remarks
Q354	2SC1684(Q,R,S)	TRANSISTOR SI NPN	
Q354	2SC2785(TE)	TRANSISTOR SI NPN	
Q354	2SC2785(TF)	TRANSISTOR SI NPN	
Q354	2SC2785(TH)	TRANSISTOR SI NPN	
Q354	2SC2785(TJ)	TRANSISTOR SI NPN	
Q354	2SC2785(TK)	TRANSISTOR SI NPN	
Q354	2SC3311A(Q,R,S)	TRANSISTOR SI NPN	
Q354	2SC945A(TPA)	TRANSISTOR SI NPN	
Q354	2SC945A(TQA)	TRANSISTOR SI NPN	

## DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D352	MA185	DIODE SI	
D353	MA165	DIODE SI	
D353	WG713A	DIODE SI	
D353	1SS119	DIODE SI	
D353	1SS133T	DIODE SI	
D354	MA165	DIODE SI	
D354	WG713A	DIODE SI	
D354	1SS119	DIODE SI	
D354	1SS133T	DIODE SI	
D355	MA165	DIODE SI	
D355	WG713A	DIODE SI	
D355	1SS119	DIODE SI	
D355	1SS133T	DIODE SI	

## RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R351	ERGLANJ153H	METAL OXIDE 1W 15K	
R352	ERGLANJ153H	METAL OXIDE 1W 15K	
R353	ERGLANJ153H	METAL OXIDE 1W 15K	
R354	ERD25TJ272	CARBON 1/4W 2.7K	
R356	ERD25TJ272	CARBON 1/4W 2.7K	
R357	ERDS2TJ392	CARBON 1/4W 3.9K	
R358	ERDS2TJ392	CARBON 1/4W 3.9K	
R359	ERDS2TJ392	CARBON 1/4W 3.9K	
R360	ERDS2TJ391	CARBON 1/4W 390	
R361	ERDS2TJ391	CARBON 1/4W 390	
R362	ERDS2TJ391	CARBON 1/4W 390	
R363	ERDS2TJ181T	CARBON 1/4W 180	
R364	ERDS2TJ181T	CARBON 1/4W 180	
R365	ERDS2TJ181T	CARBON 1/4W 180	
R366	ERD25TJ272	CARBON 1/4W 2.7K	
R367	ERDS2TJ121	CARBON 1/4W 120	
R368	ERDS2TJ121	CARBON 1/4W 120	
R369	ERDS2TJ473	CARBON 1/4W 47K	
R370	ERDS2TJ822	CARBON 1/4W 8.2K	
R371	ERDS2TJ123	CARBON 1/4W 12K	
R372	ERDS2TJ473	CARBON 1/4W 47K	

## CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C351	VCYSARH391KB	CERAMIC 50V 390PF	
C352	VCYSARH391KB	CERAMIC 50V 390PF	
C353	VCYSARH471KB	CERAMIC 50V 470PF	
C354	VCKSKZML02KB	CERAMIC 2KV 1000PF	
C358	ECA2CMR47B	ELECTROLYTIC 160V 0.47UF	

## PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P351	VJPS0274	CONNECTOR 4P	
P352	VJWS4NN190BD	PARALLEL CONNECTOR 4P	
P355	LJP65001A	CRT SOCKET	

## MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
153	TMM7443-1	CLAMPER	
155	TMM76403-1	CLAMPER	



## 12.3.6. POWER SUPPLY C.B.A.

### INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC1001	STR-F6624	IC, LINEAR	△
IC1002	0N3131-S.KT	IC, LINEAR	△
IC1002	0N3131-R.KT	IC, LINEAR	△

### TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q1001	FS30KMJ3	FIELD EFFECT TRANSISTOR SI	△
Q1002	FS30KMJ3	FIELD EFFECT TRANSISTOR SI	△
Q1003	2SD637 (R,S)	TRANSISTOR SI NPN	
Q1004	2SC2631	TRANSISTOR SI NPN	

### DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D1001	MA719	DIODE SI	
D1002	EG01V1	DIODE SI	
D1002	EG01	DIODE SI	
D1003	EG01V1	DIODE SI	
D1003	EG01	DIODE SI	
D1004	EG01V1	DIODE SI	
D1004	EG01	DIODE SI	
D1005	EG01V1	DIODE SI	
D1005	EG01	DIODE SI	
D1006	FML-G22S	DIODE SI	
D1007	EG01V1	DIODE SI	
D1007	EG01	DIODE SI	
D1008	RK16LF013211	DIODE	
D1009	EG01V1	DIODE SI	
D1009	EG01	DIODE SI	
D1010	RK49LF302	DIODE	
D1011	RL2ALFB1	DIODE	
D1012	MA4062NM	DIODE ZENER 6.2V	
D1013	MA165	DIODE SI	
D1013	WG713A	DIODE SI	
D1013	1SS119	DIODE SI	
D1013	1SS133T	DIODE SI	
D1014	ERA15-01V5	DIODE SI	
D1014	ERA15-01V3	DIODE SI	
D1015	ERA15-01V5	DIODE SI	
D1015	ERA15-01V3	DIODE SI	

### RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R1001	ERG2SJ104H	METAL OXIDE 2W 100K	
R1002	ERDS2TJ104	CARBON 1/4W 100K	
R1003	ERX2SJR22H	METAL OXIDE 2W 0.22	
R1004	ERD2FCG681P	CARBON 1/4W 680	△
R1005	ERDS2TJ152	CARBON 1/4W 1.5K	
R1007	ERDS2TJ332	CARBON 1/4W 3.3K	
R1008	ERDS2TJ562	CARBON 1/4W 5.6K	
R1009	ERDS2TJ8R2T	PRECISION METAL FILM 1/4W 8.2	
R1010	ERDS2TJ223	CARBON 1/4W 22K	
R1011	ERDS2TJ6R8T	CARBON 1/4W 6.8	
R1012	ERDS2TJ223	CARBON 1/4W 22K	
R1015	ERQ12AJ101P	FUSE 1/2W 100A	△
R1016	ERDS2TJ104	CARBON 1/4W 100K	
R1017	ERDS1TJ182T	CARBON 1/2W 1.8K	
R1018	ERDS2TJ153	CARBON 1/4W 15K	
R1019	ERDS2TJ471	CARBON 1/4W 470	
R1020	ER0S2TKD3901	PRECISION METAL FILM 1/4W 3.9K	
R1021	ER0S2TKD1801	PRECISION METAL FILM 1/4W 1.8K	
R1022	ERDS2TJ223	CARBON 1/4W 22K	
R1023	ERDS2TJ223	CARBON 1/4W 22K	
R1024	ERDS2TJ561	CARBON 1/4W 560	
R1025	ERU5TAK2R2	FUSE 5W 2.2A	△

### CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C1001	ECCE2DA331BB	ELECTROLYTIC 200V 330UF	△
C1002	ECKATS472MF	CERAMIC 250V 4700PF	△
C1002	ECKETS472MF	CERAMIC 250V 4700PF	△
C1002	VCKST4D472MY	CERAMIC 250V 4700PF	△
C1002	VCKST5D472MY	CERAMIC 250V 4700PF	△
C1002	VCKSU4D472MY	CERAMIC 250V 4700PF	△
C1002	VCKSU5D472MY	CERAMIC 250V 4700PF	△
C1003	ECA1EHG101B	ELECTROLYTIC 25V 100UF	
C1004	VCYSARH471KB	CERAMIC 50V 470PF	
C1005	VCKSWMM332KR	CERAMIC 2KV 3300PF	
C1006	VCKSWZP102KR	CERAMIC 250V 1000PF	
C1007	VCYSARH102KB	CERAMIC 50V 1000PF	
C1008	VCYSARH102KB	CERAMIC 50V 1000PF	
C1009	VCKSWZP102KR	CERAMIC 250V 1000PF	
C1010	VCKSWZP102KR	CERAMIC 250V 1000PF	
C1011	EEUFC1V102E	ELECTROLYTIC 35V 1000UF	
C1012	EEUFC1V102E	ELECTROLYTIC 35V 1000UF	
C1013	ECA1HHG330	ELECTROLYTIC 50V 33UF	
C1014	ECA1HHG330	ELECTROLYTIC 50V 33UF	
C1015	EEUFC1V681E	ELECTROLYTIC 35V 680UF	
C1016	EEUFC1V102E	ELECTROLYTIC 35V 1000UF	
C1019	VCKSWZP332KR	CERAMIC 250V 3300PF	
C1020	VCKSWZL221KR	CERAMIC 1KV 220P F	
C1021	VCKSWZP332KR	CERAMIC 250V 3300PF	
C1022	VCKSWZL221KR	CERAMIC 1KV 220P F	
C1023	EEUFC1C122E	ELECTROLYTIC 16V 1200UF	
C1024	EEUFC1E102E	ELECTROLYTIC 25V 1000UF	
C1025	VCESAU1H330E	ELECTROLYTIC 50V 33UF	
C1026	VCESAU2C101E	ELECTROLYTIC 160V 100UF	△
C1027	VCYSARH102KB	CERAMIC 50V 1000PF	
C1030	ECKATS472MF	CERAMIC 250V 4700PF	

### COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L1001	VLPS0088	COIL FERRITE BEAD CORE	
L1002	VLPS0087	COIL	
L1003	VLPS0087	COIL	
L1004	VLPS0087	COIL	
L1005	LSLQA10R5R6M	COIL 5.6UH	
L1006	LSLQA10R5R6M	COIL 5.6UH	
L1007	LSLQA10R5R6M	COIL 5.6UH	
L1008	VLPS0087	COIL	
L1009	VLPS0087	COIL	
L1010	VLPS0087	COIL	
L1011	VLPS0088	COIL FERRITE BEAD CORE	
L1012	VLPS0088	COIL FERRITE BEAD CORE	
L1013	VLPS0088	COIL FERRITE BEAD CORE	

### FUSE & PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
PR1001	ICP-F38-1	IC PROTECTOR 1.5A	△
PR1001	UN10015	IC PROTECTOR 1.5A	△
PR1002	ICP-F38-1	IC PROTECTOR 1.5A	△
PR1002	UN10015	IC PROTECTOR 1.5A	△
PR1003	ICP-F50	IC PROTECTOR 50V 2A	△

### RELAY

Ref. No.	Part No.	Part Name & Description	Remarks
RL1001	LSSY0002	RELAY	△

### TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T1001	ETS35AA4B5NC	SW TRANSFORMER	△
T1002	ETE28K132AZ	TRANSFORMER	△
T1002	ETE28K118AZ	TRANSFORMER	△
T1003	BTS29AK3J9AD	TRANSFORMER	△

### PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E61	LRP63007A	SUB POWER C.B.A.	RTL

## MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
244	TUX77809	CLAMPER	
432	XTV3+8JR	TAPPING SCREW,STEEL	
483	XYN3+F10S	SCREW W/WASHER,STEEL	
489	XYN3+F8S	SCREW W/WASHER,STEEL	
723	VMFS0134	SHEET,NYLON-RAYON	
777	LUS63005A	HEAT SINK	
778	LUS63006A	HEAT SINK	
779	VEKS5813	GROUNDING WIRE ( B,C,D )	
782	VEKS5654	CONNECTOR CORD W/PLUG	
783	VEKS5653	CONNECTOR CORD W/PLUG	

## 12.3.7. SUB POWER C.B.A.

## INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC1101	MB3778PF	IC, LINEAR	

## TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q1101	2SD814A	TRANSISTOR SI NPN CHIP	
Q1102	2SD601A	TRANSISTOR SI NPN CHIP	
Q1102	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q1103	2SB789A	TRANSISTOR SI PNP CHIP	
Q1104	2SD601A	TRANSISTOR SI NPN CHIP	
Q1104	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q1105	2SD601A	TRANSISTOR SI NPN CHIP	
Q1105	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q1106	XN1501	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q1107	2SD1030(R,S)	TRANSISTOR SI NPN CHIP	
Q1108	2SD601A	TRANSISTOR SI NPN CHIP	
Q1108	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q1109	2SD1030(R,S)	TRANSISTOR SI NPN CHIP	
Q1110	2SD874A(R,S)	TRANSISTOR SI NPN CHIP CHIP	
Q1111	2SB766A(R,S)	TRANSISTOR SI PNP CHIP	
Q1112	2SD601A	TRANSISTOR SI NPN CHIP	
Q1112	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q1113	2SD874A(R,S)	TRANSISTOR SI NPN CHIP CHIP	
Q1114	2SB766A(R,S)	TRANSISTOR SI PNP CHIP	
Q1115	XN4601	TRANSISTOR COMPLX CMP SI NPN/PNP CHIP	
Q1115	HN1B01F	TRANSISTOR COMPLX CMP SI NPN/PNP CHIP	
Q1115	IMZ1	TRANSISTOR COMPLX CMP SI NPN/PNP CHIP	

## DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D1101	MA165	DIODE SI	
D1101	WG713A	DIODE SI	
D1101	1SS119	DIODE SI	
D1101	1SS133T	DIODE SI	
D1102	ERA15-02V5	DIODE SI	
D1103	MA4110N-M	DIODE ZENER 11V	
D1104	MA4056N	DIODE ZENER 5.6V	
D1105	MA165	DIODE SI	
D1105	WG713A	DIODE SI	
D1105	1SS119	DIODE SI	
D1105	1SS133T	DIODE SI	
D1106	ERA15-01V5	DIODE SI	
D1107	ERA15-01V5	DIODE SI	
D1108	MA165	DIODE SI	
D1108	WG713A	DIODE SI	
D1108	1SS119	DIODE SI	
D1108	1SS133T	DIODE SI	
D1109	MA165	DIODE SI	
D1109	WG713A	DIODE SI	
D1109	1SS119	DIODE SI	
D1109	1SS133T	DIODE SI	
D1110	MA4160N-L	DIODE ZENER 16V	
D1111	MA4270N-H	DIODE ZENER 27V	

Ref. No.	Part No.	Part Name & Description	Remarks
D1112	MA4390N-M	DIODE ZENER 39V	
D1113	MA165	DIODE SI	
D1113	WG713A	DIODE SI	
D1113	1SS119	DIODE SI	
D1113	1SS133T	DIODE SI	
D1114	MA4390N-M	DIODE ZENER 39V	
D1115	MA4270N-H	DIODE ZENER 27V	
D1117	MA4390N-M	DIODE ZENER 39V	
D1118	MA4390N-M	DIODE ZENER 39V	

## RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R1101	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1102	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1103	ERJ6ENF6801V	CARBON CHIP 1/10W 6.8K	
R1104	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R1105	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R1106	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R1107	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R1108	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1109	ERJ6ENF2201V	MGF CHIP 1/10W 2.2K	
R1110	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R1111	ERJ6ENF6801V	CARBON CHIP 1/10W 6.8K	
R1112	EVNCRYAA03B52	VARIABLE 500	
R1113	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1114	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R1115	EVNCRYAA03B52	VARIABLE 500	
R1116	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R1117	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R1118	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R1119	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R1120	EVNCRYAA03B53	VARIABLE 5K	
R1121	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1122	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R1123	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R1124	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R1125	ERJ6ENF6802V	MGF CHIP 1/10W 68K	
R1126	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R1127	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1128	EVNCRYAA03B53	VARIABLE 5K	
R1129	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R1130	ERJ6ENF6802V	MGF CHIP 1/10W 68K	
R1131	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R1132	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1133	ERJ6ENF6802V	MGF CHIP 1/10W 68K	
R1134	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1135	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R1136	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1137	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1138	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1139	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R1140	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1141	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R1142	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R1143	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R1144	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
R1145	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R1146	ERDS2TJ222	CARBON 1/4W 2.2K	
R1147	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1148	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R1149	ERDS2TJ222	CARBON 1/4W 2.2K	
R1150	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1151	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R1152	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R1153	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R1154	ERJ6ENF2202V	MGF CHIP 1/16W 22K	

## CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C1101	EEAGA1V100H	ELECTROLYTIC 35V 10UF	
C1102	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C1103	ECUV1H103ZFN	C CHIP 50V 0.01UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C1104	ECUV1H821JCN	C CHIP 50V 820PF	
C1105	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C1106	EEAGAL330H	ELECTROLYTIC 10V 33UF	
C1107	ECUV1H222KBN	C CHIP 50V 2200PF	
C1108	ECUV1H222KBN	C CHIP 50V 2200PF	
C1109	EEAGALC220H	ELECTROLYTIC 16V 22UF	
C1110	ECUV1E104KBN	C CHIP 25V 0.1UF	
C1111	ECUV1E104KBN	C CHIP 25V 0.1UF	
C1112	ECQE2103KF3	POLYESTER 200V 0.01UF	
C1113	EEAGAL470H	ELECTROLYTIC 10V 47UF	
C1114	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C1115	EEAGALC220H	ELECTROLYTIC 16V 22UF	
C1116	ECUV1H222KBN	C CHIP 50V 2200PF	
C1117	ECUV1E104KBN	C CHIP 25V 0.1UF	
C1118	ECUV1H222KBN	C CHIP 50V 2200PF	
C1119	EEAGALC100H	ELECTROLYTIC 16V 10UF	
C1120	EEAGALC100H	ELECTROLYTIC 16V 10UF	
C1121	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C1122	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C1124	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C1125	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C1130	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C1131	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C1132	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C1133	VCKSWZP332KR	CERAMIC 250V 3300PF	
C1134	ECUV1H103ZFN	C CHIP 50V 0.01UF	

## COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L1101	ELESN220KA	COIL 22UH	
L1102	ELESN220KA	COIL 22UH	
L1103	ELESN220KA	COIL 22UH	
L1104	VLQSW07D9R0M	COIL 9UH	
L1105	VLQSW07D220M	COIL 22UH	
L1106	VLQSW07D220M	COIL 22UH	

## PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P1101	VEKS5652	CONNECTOR CORD W/PLUG,DC115V	
P1102	VEKS5650	CONNECTOR CORD W/PLUG,DC44V	
P1103	VEKS5651	CONNECTOR CORD W/PLUG,DC115V	

## 12.3.8. FM TRANSMITTER HOLDER C.B.A.

( Model: B,C,D )

## COMPARISON CHART OF MODELS &amp; MARKS

MODEL	MARK
PV-C911	A
PV-C921	B
PV-C921-K	C
PV-C931W	D

## DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D4291	MA8051-M	DIODE ZENER CHIP 5.1V	

## RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R4291	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4292	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4293	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4295	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4296	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4297	ERDS2TJ271	CARBON 1/4W 270	

## COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L4291	BK2125HM102	FERRITE CORE	
L4292	BK2125HM102	FERRITE CORE	
L4293	BK2125HM102	FERRITE CORE	
L4294	BK2125HM102	FERRITE CORE	
L4295	BK2125HM102	FERRITE CORE	
L4296	BK2125HM102	FERRITE CORE	

## PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P4291	LSMB0254	FM ANTENNA	
P4293	VJPS0277	PIN HEADER CONNECTOR 7P	

## MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
720	VEPS4033B	FM TRANSMITTER C.B.A. NR	
722	LSGF0037	BARRIER	

## 12.3.9. ELECTRICAL PARTS LOCATED ON CHASSIS

Ref. No.	Part No.	Part Name & Description	Remarks
726	VEKS5523	DEW SENSOR UNIT	
727	ULTSC10AN1	FUSE 125V 10A	△